SUPPLEMENT.

The Mining Journal,

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FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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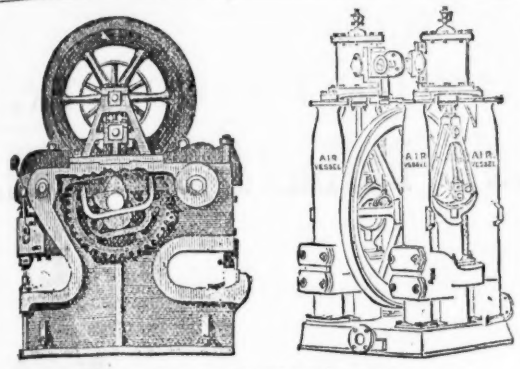

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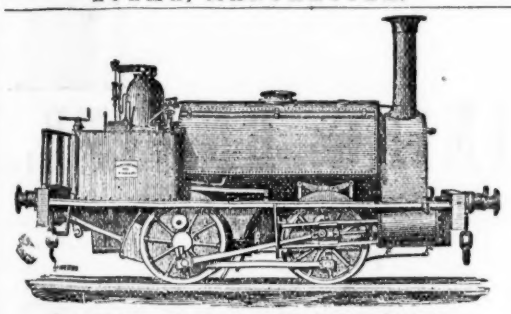

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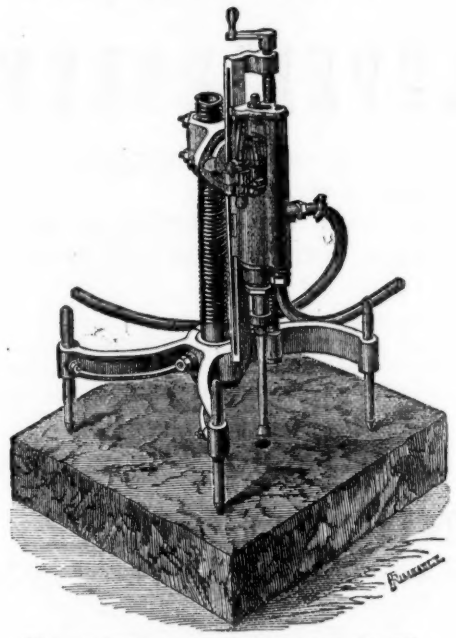

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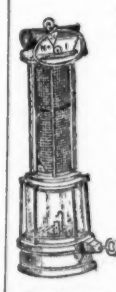

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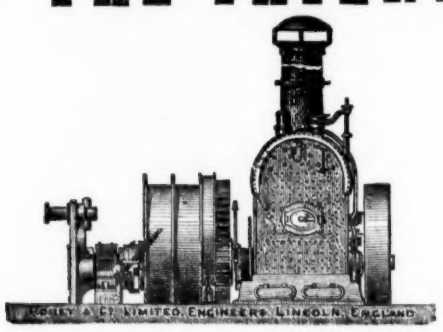

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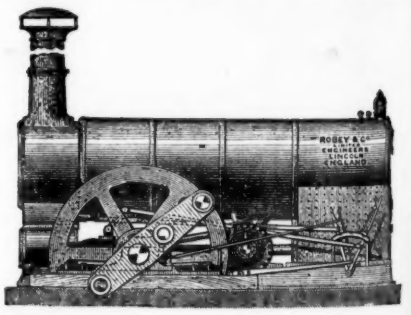

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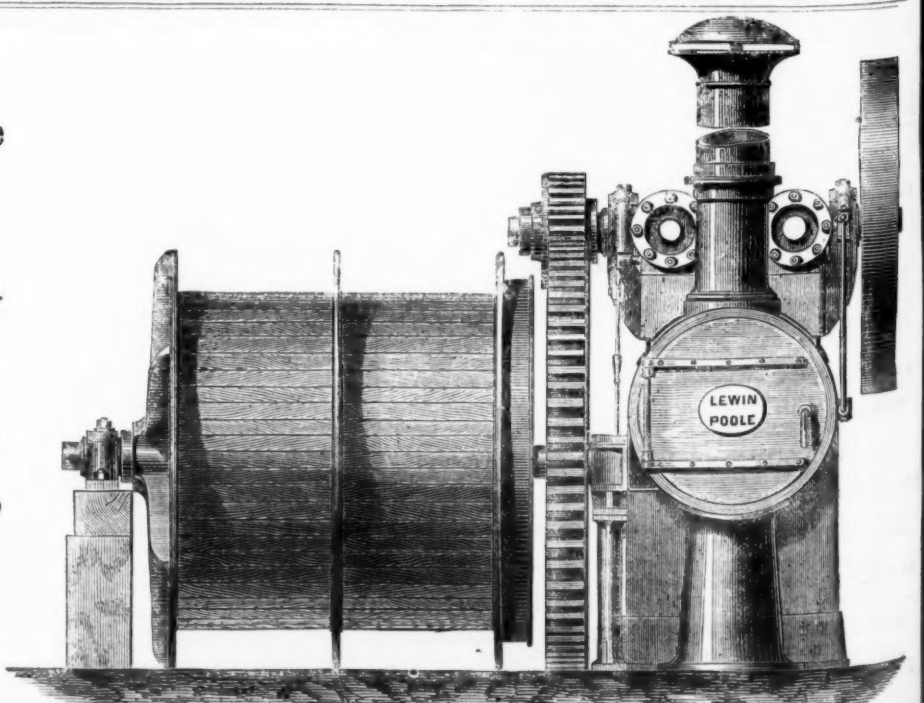

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Original Correspondence.

ON PYRITES AS A SOURCE OF SULPHUR, IRON, AND COPPER.

Sir,—Having perused the very interesting paper on "Pyrites as a source of Sulphur, Iron, and Copper," read at a meeting of the Society of Arts by Dr. C. Wright, F.C.S., I trust you will grant me space in your columns to make a few further remarks on the subject.

Dr. Wright refers to my father's process for the manufacture of sulphate of soda from a mixture of pyrites and common salt as being the parent of other methods since proposed for the manufacture of sulphate of soda, chloride of copper, and chlorine; and I desire to inform Dr. Wright and your readers the facts respecting the origin of those processes, and who discovered them, and I am confident that when Dr. Wright has investigated the subject by the light of these additional facts, he will be the first to give the credit of those processes to the real discoverer, who had the misfortune to spend most of his life in their development with but little remuneration, and that at least his memory shall not be robbed of the credit due to him for his untiring perseverance that undoubtedly developed both the parent process and its offspring.

Having no memoranda here referring to the subject, I can only give the dates approximatively. I will, however, describe the processes as carried out on a large scale at St. Helen's and on the Tyne about 25 years ago, and anyone interested in the subject can obtain the various specifications at the Patent Office; they are dated between 1840 and 1850. About 1838 William Longmaid first began to experiment on the subject, his attention being drawn to it by an incident that occurred at Wheal Franco, near Tavistock, Devon, of which he was the purser. The mine for some time previously had been producing a large quantity of copper ore, a considerable proportion being of low quality, and this was laid aside with the intention of dressing it when the supplies of better ore should fail; this position of affairs at last arrived, and they turned to their immense stock of poor ore to keep up their samplings, but to their dismay the copper had vanished from a large portion of the piles. My father at once began investigating the matter, and found that every shower of rain carried off its share of copper; he collected some of the water running from the heaps, and obtained a precipitate of copper by means of pieces of iron. The idea then occurred to him that possibly by heat or some other means this process of nature might be imitated, and brought about by artificial means more rapidly, and with more complete results, but knowing nothing of chemistry at that time his process was slow and difficult. But I fear I am entering too minutely into these details, and will conclude my preliminary remarks by saying that after a good deal of study and numerous experiments he so far perfected the processes as to obtain Letters Patent in 1842. About this time the first small works for practically working this process were erected in an old glass works at Millbank, Plymouth, and he there manufactured and sold sulphate of soda and copper precipitate. The process then adopted consisted simply of grinding the coppery pyrites with common salt, and roasting it in a long reverberatory, then lixiviating the product, precipitating the copper by means of scrap iron, and crystallising out the sulphate of soda, which was sold in that state.

By this time other parties had become interested in the patents, and, being convinced of the practicability of the process, decided to erect extensive works at St. Helen's, Lancashire, to work the processes on a large scale, with its various branches. The extent of the operations may be judged from the fact that 600 tons of coal were burnt per week. Between the years 1842 and 1850 my father obtained three or four other patents—one for the manufacture of chloride of lime from the pyrites and salt; one for the separation of copper and silver from copper ores without regard to the utilisation of the sulphate of soda produced in the operation; and a third for the manufacture of black paint from the residual oxide of iron, produced in the manufacture of sulphate of soda, and extraction of the copper.

I will now describe the various processes as carried out at St. Helen's about 1847. The principal object being the manufacture of alkali, it may be well to describe that process first. The ore and salt were piled in alternate layers, taking care to have in the mixture a quantity of sulphur slightly in excess of that required to produce perfect decomposition of the salt; the mixture thus prepared was run through Cornish rolls, and sifted in a revolving screen of 64 holes to the square inch. Tram wagons conveyed the ground ore and salt to long reverberatory furnaces, of which there were 12 of 90 ft. long, and 6 of 60 ft. Each furnace had four beds, and the ore was introduced on that furthest from the fire, where it was merely dried and warmed by the heat escaping from the beds nearer the fire; on the second bed the sulphur became strongly ignited, and the various reactions commenced; on the third bed nearly all the sulphur and chlorine had changed places, the former combining with oxygen and sodium, thus forming sulphate of soda, whilst the chlorine had combined with the metallic bases—iron, copper, silver, &c. The charges being removed thence to the fourth and last bed, where the heat was stronger, the chloride of iron became decomposed with formation of oxide of iron, chlorine, and hydrochloric acid, this latter being formed in small proportion from the decomposition of the moisture of the atmosphere. The charge on being drawn consisted essentially of sulphate of soda, oxide of iron, chloride of copper, silver, and gold in small quantities. This product was called sulphate ash, and was trammed into large tanks 40 ft. square and 5 ft. deep; they were so arranged that the liquors circulated from one to another—that is, from the weaker to the stronger—and were drawn off saturated with the various salts. Three of these tanks were always in operation, whilst one was being emptied and re-filled. The saturated liquor was thence conveyed to the precipitating vats, where the copper, silver, and gold were thrown down by means of scrap iron. The liquors thus freed from valuable metallic salts were run into the black ash furnaces, and converted into carbonate of soda in the ordinary way by fusion with lime and slack. The bulk of the soda was sold as alkali, and the quantity amounted to 55 or 60 tons per week. A small proportion of it was converted into crystals and bi-carbonate of soda by ordinary methods.

Having now followed the sodium of the salt to its conversion into merchantable states, I will return to the copper precipitate. It was taken from the vats, washed through sieves to separate small pieces of scrap iron and the sulphate of soda contained in the liquor, and then transferred to a small reverberatory furnace. It was there roasted at a low temperature, and the copper converted into black oxide, which was dissolved in sulphuric acid, then crystallised and sold as the blue vitriol of commerce. In the vat in which the copper was dissolved a considerable amount of insoluble matter remained that consisted principally of the impurities of the scrap iron employed in the precipitation of the copper and silver. This residue was called silver mud, and was sold in that state to smelters and refiners; it varied a good deal in quality, assaying from 500 ozs. to 2000 ozs. per ton, with a small quantity of gold.

The next subject to consider is the residual oxide of iron and waste remaining after the soluble portions had been extracted by water. Portions were selected that contained comparatively a small quantity of quartz, and were levigated in order to obtain only the finest portion of the oxide of iron which, after being dried and ground with oils, was sold as paint, and was of the same colour as the oxide of iron paint now used for painting the great railroad bridges, stations, and other ironwork. I do not know whether this was the first time purple oxide of iron had been used for paint; if not, its use previous to that time had been very restricted. Some of the levigated oxide of iron was mixed with coal tar, and heated in close retorts until it ceased to evolve gas. It was then lifted from the furnace and allowed to cool in the same retort; the product was a fine black powder, that made a splendid paint when ground with oil. For this process my father obtained a patent. At one time six large sets of stones were kept steadily running for grinding the red and black iron paints, and the very general use of these paints in the present day is an undoubted proof of their superiority. Small quantities of pig-iron were also made from the sulphate ash residues, but in consequence of the Irish and Cornish ores (almost the only ores then in the market) containing a large amount of stoney impurities, this process was not carried beyond the stage of experiment.

Chloride of Lime Process.—When describing the method of calcining the ore and salt I mentioned that the charge on the third bed of the furnace consisted essentially of sulphate of soda and metallic chlorides. When the object was to manufacture chloride of lime the charges were drawn from the third bed, and transferred to a muffle furnace—that is, a furnace whose interior has no communication with the fire or the gases from the fire. The heat was raised to dull redness, and a current of dry air forced through the furnace by means of a fan. The chlorine gas thus produced was conveyed into chambers fitted with numerous moveable shelves, on which was placed quicklime, and thus was produced chloride of lime equal to any in the market.

In further confirmation of my assertion that William Longmaid was the first discover of these several processes, I may mentioned that he was awarded a Council Medal at the Exhibition of 1851, and I believe he was the only Englishman in the manufacturing chemical class that received a first-class medal. It fell to my lot to fit up the stand in the Exhibition, and I well remember that in addition to the various salts of soda, blue vitriol, and chloride of lime, bars of iron, copper, and silver were exhibited, as also the red and black paints.

With the exception of Mr. Claudet's process for the precipitation of the silver and gold by iodide of potassium, I am not aware of any improvement or discovery of any other branch process that was not carried out 20 years ago at St. Helen's.

I trust you will not consider this too long for insertion.

Utah, July 12. John Longmaid.

NORTHERN NOTES.

Sir,—Journeying in Norway, among the mountains, is an attractive pursuit to the lover of Nature—the forest, flood, and fell possessing rare combinations of wild grandeur. The inhabitants are peaceable and kind; but the plodding miner is more intent on extracting the hidden wealth of the hills than attentive to their surface beauties, perhaps; and, on this occasion, a toiler in the mine asks the aid of his brethren through the columns of the *Mining Journal*, which finds its way to miners in all lands, on a subject which, from the attempt to lay down apparent facts, will, it is hoped, be seen from the following Notes.

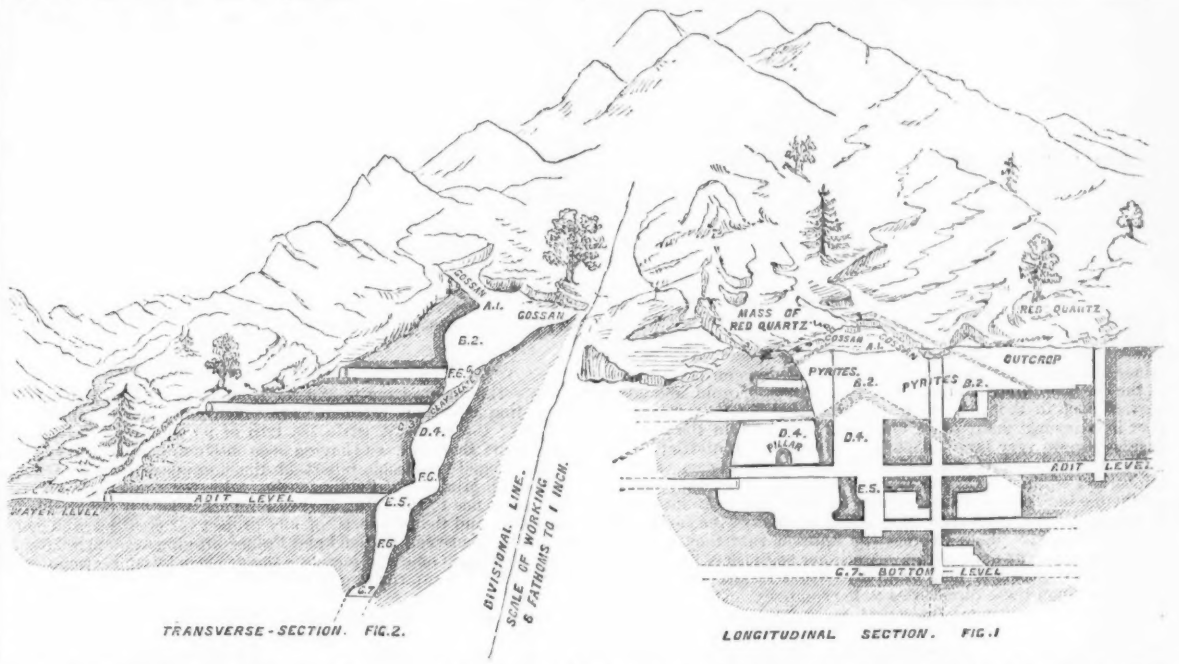


FIG. 1—LONGITUDINAL SECTION. FIG. 2—TRANSVERSE SECTION. Like or corresponding parts in each section denoted by like letters or figures.

Referring to the surface A 1, A 1, it might be remarked that large quantities of gossan were found on the outcrop of the lode, intermixed with rich copper ore.

B 2, an excellent deposit of iron pyrites, 4 fms. wide, containing 45 to 50 per cent. of sulphur.

C 3, a bed or layer of clay-slate, separating the iron pyrites proper from the cupreous deposit.

D 4, a splendid deposit of cupreous pyrites, 4 fms. in width, and pronounced by a practical miner of much experience as being the finest course of copper ores to be found in Norway, and seldom seen in Cornwall of such value.

E 5, a very fine deposit of pyrites, cupreous throughout, but of less value than D 4.

F 6, F 6, F 6, showing at these points the dip of vein to be about 10° off vertical, and of much less value than the comparatively flat and large deposits.

G 7, here the evidence is strong of another flat deposit being near, and it is on this question that the views of your scientific and practical correspondents are courteously and earnestly solicited as to whether copper-bearing, or the ordinary non-cupreous, pyrites (mundic) might be fairly expected as the prevailing mineral in depth.

In order to assist the judgment in forming an opinion on this subject, it might be observed that our experience of this mine extends over a few years only, having discovered it from surface indications (gossan), and opened it to a depth of 30 fms. on the dip of lode; and one noticeable, if not remarkable, feature consists in the fact that the best deposits of mineral yet found here have been where the lode was comparatively flat, or about 15° off horizontal; whereas the portions marked F 6, F 6, F 6, Fig. 2, or about 10° off vertical, have been small and slightly productive. The veinstone at these points consisting of red quartz (jasper), blende, inferior pyrites, white quartz, and clay-slate, while, as a rule, thin seams of rich yellow sulphuret exist in the joints of the rock. This being the case in our present bottom level, and a stranger looking at the fine surfaces of copper after a blast, would be apt to consider it highly productive for that mineral, whilst in the larger deposits polished surfaces (slickenslides) abound, the joints being also frequently filled with asbestos, coloured variously with a light blue (cobalt) or light green. There appears to be very conclusive evidence of this being a true fissure vein, extending to unknown depths, because there is another mine near us, on the west, working the same run of lode over 200 years, the bottom levels of which are flooded, and through inefficient pumping appliances it is only carried down about 100 fms. from surface, yet the same characteristics abound in the old mine and the new. The width of lode in the old mine has been 15 fms., but the greatest width yet seen on this (new) mine is 10 fms. of the non-cupreous pyrites, and of this deposit it was estimated, by a high authority on pyrites mining, that it would produce at a moderate depth 144,000 tons, at the rate of 1000 tons monthly. Of this quantity scarcely one-sixth has yet been extracted, our attention of late being more particularly directed to the search for copper. A brief reference to Fig. 1 shows the conical peak, or top, of the principal deposit of cupreous, the envelope of clay-slate, C 3, surrounding it on all sides, except on the footwall, where it rested on the red quartz. The general outline of the copper ore, D 4, and clay-slate, resembles that of the mountain in the background, and it might be worthy of remark that, in addition to the longitudinal features agreeing, the transverse sections of the lode and mountain also corresponds—that is to say, the average dip of the vein assimilates to the average ascent of the mountain side from the valley. This might be an accidental circumstance, but suggests an idea of the flow, or forcing, of mineral into an irregular fissure between two distinct layers of strata, which formed the matrix of the vein at the time of upheaval or formation of the mountain.

To my practical brethren I shall only observe that it is no part of my present purpose to theorise further than to elicit opinions as to the extension of mineral in depth, and if likely to be worked at a profit, because different views are held as to whether we should begin to sink the shaft at once, or first extend the bottom levels; but independent expressions of opinion, whether favourable or adverse to the writer's proposals, will be hailed with pleasure.

A. R. O.

TIN MINES OF AUSTRALIA.

Sir,—From the notices and letters in some of the last numbers of the *Mining Journal* which have reached us, there would appear to be some misapprehension at home, both as to the quantity of tin ore we can produce and the cost at which it can be raised. Your Brisbane correspondent estimates our produce for 1873 at 4000 tons of metal. I believe the total produce was not less than 5000 tons, and that the yield for 1874 will be over that amount. The price of good ore in Sydney has ruled between 50*l.* and 55*l.* per ton for several months past, yet this low price has appeared rather to stimulate than to decrease the production, and a fall of 10*l.* per ton would have little effect in checking the working of the mines.

Large areas of land are now held and worked in Queensland by individual miners, holding licenses which empower each man to occupy a certain area of tin land; and as the same system has now been adopted in New South Wales there will be a considerable increase of production from miners working on their own account. So long as they can average 30s. to 35s. each per week many miners will prefer working in this way, rather than for wages, and there is a great extent of country which will return them this amount.

When the tin deposits were first opened large sums were wasted in bad working, but a little experience has remedied this evil, and in more than one large mine, where they lost money at the high prices, they are now making a fair profit through the adoption of a more effective and economical plan of working. The exactions of the English smelters have compelled us to begin smelting here, and before long no tin will be exported in the form of ore. At present, the price charged for smelting is 6*l.* per ton of ore, and the average return may be estimated as having now reached 70 per cent. The carefully cleaned ore gives a still better yield, and I know one company whose return on ore smelted during the last three months averaged 72 per cent; and a second, where the last eight parcels of ore smelted gave over 73 per cent.; the assay of the slabs giving from 99 to 99·3 per cent. of pure metal. The poor ores mainly consist of the seconds obtained in the final dressing of the ore for market, and are for the most part sent to London, as our smelters object to deal with them, but the quantity is small. Working as above, even with tin at 80*l.* per ton here (say, equivalent to 90*l.* or 92*l.* in London), we should still realise from 50*l.* to 52*l.* per ton for our ore.

These are plain uncoloured facts, and indicate how useless it will be for poor mines to attempt to compete with us, as the longer the struggle is kept up the greater will be their loss. The sole hope of saving the Cornish tin mines lies in such an increase in the consumption of tin as will absorb the additional produce from Australia, and what prospect there is of any increase of this kind you are better able to judge than we are. H. A. Thompson.

Sydney, June 12.

HUMID TREATMENT OF TIN ORE.

Sir,—I have seen it somewhere stated that there are enormous quantities of halvans now lying as refuse in Cornwall which might be turned to profitable account if a means could be discovered of extracting the tin by the wet way, but I cannot learn that it has even been attempted to adopt this method, and, therefore, I cannot ascertain what composition the ore has had which it is proposed to treat. From what I can read on the subject it seems to me that both mine tin and stream tin are remarkably pure, although occurring in small grains in close proximity to other metals, and if this be so I should think the mechanical treatment at present followed cannot be surpassed. The minute particles of tin being mixed with wolfram, copper, arsenical pyrites, &c., it would obviously be suicidal to bring the mixture into the form of a chemical compound or alloy instead of separating the tin ore by water or air. The case is very analogous to that of treating iron—there may be an apparent loss in the refuse from the first process, but the mass to be afterwards handled is so much reduced in quantity that the loss is a positive benefit as compared with the attempt to avoid it by the use of direct processes. It has been explained by Mr. I. Lowthian Bell that each time a ton of material is heated for a given time the consumption of fuel is nearly equal, and that by the use of the blast-furnace as a preparatory process, since the iron produced by direct processes can only be classed with puddled iron, a similar state of purity and an equal percentage of metal from a given ore could be produced with less fuel with the blast-furnace than without it, even assuming the direct process to be theoretically perfect.

It would be the same in attempting to treat tin ore by the wet way, the mass of refuse to be dealt with would be so much increased that loss would result. At present the chief cost is the stamping, as the tinstone must be reduced to fine powder to make the separation effective, but as the stannic peroxide is not affected by a moderate heat the tinstuff can be calcined so that the mechanical separation with water is facilitated; indeed, the density of the tinstone is so great that when care is used almost every matter not chemically combined may be separated. Now, were the wet way adopted the case would be altogether different, we should have a whole series of metals dissolved together in one solution; and in every subsequent step we should have to use chemicals, not only to touch the tin but perhaps several other metals likewise, and then to employ a subsequent process to separate the tin from the other metals. Considering all these matters, I cannot conceive what class of stuff it is proposed to treat by the wet way, for I know that we can already treat ordinary stuff containing not less than 20 lbs. of

tin to the ton. Now, if there be the large masses of halvans spoken of why not let a company be formed for stamping them and making them marketable by the processes now used by miners, and well understood by them, instead of attempting to introduce theoretical processes, which are by no means certain in the hands of chemists in their laboratories? Let those concerned turn their attention to improvements in stamps, buddles, jiggers, and other apparatus, and I am sure it will give greater satisfaction to those who have invested their money in the properties where these halvans exist than is likely to result from any suggestions for the chemical reduction of tin ore.—*Aug.* 5. SHAREHOLDER.

COAL MINING IN INDIA—THE KISTNAH DISTRICT.

SIR,—Will you do me the favour to give this letter and enclosed telegram a place in your Journal? The gentlemen of the Indian Geological Survey have been hovering about the coal field near Juggiahpettah, in the Kistnah district, Madras Presidency, and good coal has been found in the bed of the Moonyar River, only 28 miles due north of the Kistnah district; and, again, coal has been found by a servant of the Nizam's Government, in the district of Polemcha, in the Nizam's dominions.

The enclosed telegram refers to two seams of coal struck by boring in Government land, at the village of Beddanadole, Lower Godavery district, Madras; and this coal is only ten miles east of the Kistnah district. Mr. Vanstavern, the executive engineer, who has superintended these borings, and won these two seams of coal, writes to me, under date June 20, that he is of opinion the coal will be better and thicker to the westward—that is, in the Kistnah district itself.

These are the first regular borings for coal in the Madras Presidency; they will be resumed in October, as soon as the local rains are over, when further information will be obtained.

In the vicinity of the coal iron ore and lime are both found in large quantities, the former very rich in metal, and the limestone in thick beds. There is also water carriage to the east coast, and will be also to Madras itself very shortly. The prospect for the establishment of iron manufactories is excellent, and there is now a well-founded rumour of a projected railway from Hydrabad to Masulipatam.

In the event of the Kistnah district coal turning out good, thick, and abundant—there is a very good prospect of all three—iron, glass, cement works, &c., could be established in the district at once.

TRUE COPY OF TELEGRAM.

From Messrs. Binny and Co. to Colonel Applegarth, Mitton, near Banbury, Oxfordshire.

Madras, July 31, 5·30 P.M. (Received at Mitton 6·40 P.M.)

Vanstavern has struck two seams, different borings, east of Beddanadole; respective depths, 188 and 196 feet; thickness, 4½ and 11 feet; former poor appearance; latter coal with shale. Rains stopped borings. Government satisfied result; authorised further operations.

Aug. 6. FRANCIS APPLEGARTH,
33d Regiment M.N.I., Colonel to the Madras Staff Corps.

INDIA—MR. CALVERT'S MINERAL GRANT IN KULU.

SIR,—Mr. Calvert reached Kulu about the end of December, but he was unable to proceed with active operations till early in March. The result since then is remarkable—the opening up of several silver-lead mines, formerly wrought by the ancients. The entrance to each mine was planted over, or built up in solid masonry, and the interiors were blown up from some cause. In clearing away the *debris*, valuable specimens of ore were found, which gave encouragement to proceed with the work. Three of these mines are yielding ore rich in silver, gold, and lead; at two of them the natives are clearing away the *debris*, with encouraging prospects. One of these mines is standing; nothing is proposed to be done on it at present, as the ore yields but 23 ozs. of silver, 3 dwts. of gold, and 25 per cent. of lead to the ton. It is reported that Mr. Calvert and his staff have opened many other lodes of silver-lead in the Parbutti, besides several very large copper lodes in the Bilau district.

The Government is making a new road near to some of these mines, and while the Coolies were at work last week they exposed a valuable lode of silver-lead, worth from 12 cwt. to 15 cwt. to the fathom. All the lodes are within a few fathoms of the surface, and those qualified to judge express the opinion that they will show greater richness at more depth. A mining engineer of considerable experience is expected here from the South to aid Mr. Calvert in reporting upon these discoveries to his company. I will endeavour to ascertain something of the report, and send you some particulars.

If these lodes prove as rich as they are plentiful the Kulu Valley will become a hive of mineral industry. Where labour is so cheap and plentiful, with a market on the spot at prices very much higher for these metals than at home, the working of the mines should be very profitable under good management. The antimony mines at Shigri are leased by the same company from the Government. A fresh extension of their lease has recently been granted them. They have three or four lodes of great thickness fully exposed on the mountain side.—*Aug.* 4. J. D.

PHOSPHATE OF LIME DEPOSITS IN CANADA.

SIR,—Will you kindly insert this short letter in your valuable Journal? By so doing you will, in all probability, put parties on their guard against giving large sums of money for mining properties in Canada without previously ascertaining their real value. I am now about to speak of the phosphate of lime deposits in this country, which are plentiful enough, and stretch over a length of country, the full extent of which is not as yet fully defined, but the principal places at which work has been carried on are N. Burgess, Bedford, Storrington, and Leeds townships, Ontario, and there has been some phosphate raised in or near the Ottawa district, but of that I cannot speak, as I have not visited that locality since the deposits have been found. But my principal object in now writing to the Journal is not to describe the phosphate of lime deposits, or lands, but to let parties know that certain speculators who make their way to the Old Country with paper properties in their possession take undue advantage, and ask extravagant prices for lots which, in reality, can be bought at least 100 per cent. cheaper. The phosphate interest has suffered much already by such speculators, and I should be glad to see such practices put down as soon as possible, as I can assure you that phosphate of lime lots can be purchased at very reasonable and remunerative prices, by employing men who understand the phosphate business, and not relying upon those whose only object is to make capital over such business transactions.—*Perth, Ontario, July* 20. R. C. S.

PUBLIC COMPANIES' LAW.

SIR,—The constant complaints of the difficulty of procuring the necessary capital for the development of really sound commercial and industrial undertakings, and the frequent exposure of malpractices connected with the inauguration of those concerns which to some extent succeed in raising funds, though often for very questionable enterprises, seem to prove that an alteration in the law is absolutely necessary; and I think, as stated in the *Mining Journal* a few weeks since, that a very few modifications would make our limited liability law as nearly perfect as could be desired. As a rule, I believe English capitalists are very ready to invest their funds whenever the risks to be borne are only of a legitimate trade nature, and they are quite willing to engage in enterprises of the most speculative character provided they be honestly and honourably conducted; but for some time past the mode of forming and carrying on many of our public companies has been so disreputable, and capitalists have had their confidence so completely shaken, that they are afraid to touch any concern of the kind, and the consequence is that our national industries are becoming more and more depressed. By a modification of our public companies' law all this could be remedied.

The first thing which a capitalist desires to know is that his money will be applied to the purpose for which he subscribes it, and this involves several considerations. He must be sure that a fair proportion of the proposed capital will be subscribed; for if a company be formed, the promoters of which, in their discretion, require, perhaps, 100,000*l.* for working capital, it is absurd to suppose that the promised success can even be hoped for if business be commenced with 10,000*l.* working capital. No private man of business would think of beginning under such circumstances, yet public companies frequently commence with a much smaller proportion, and unless they be able to raise more by subsequent jugglery the subscribers' funds are necessarily applied to the payment of winding-up or still less legitimate expenses, and thus lost without the proposed business being tested. It was proposed in the Journal that no company should be permitted to commence business unless three-fourths of the nominal capital be subscribed, but this would not be enough. No company should receive the registrar's certificate when the purchase money exceeds the working capital, and it should be made illegal to pay over any of the purchase money until the whole of the working capital has been subscribed, and no part of the working capital should be applicable to the payment of purchase money.

It might be objected that this would necessitate the raising of an unnecessary amount of working capital in some cases; but it might, to meet this, be enacted that three years after the formation of a company surplus capital might be returned; and as subscription, moreover, does not necessarily mean paying up the shares in full, only the proportion required need be called up, and at the end of the three years the partly-paid shares could be exchanged for a smaller number of fully-paid shares, and subsequently converted into warrants to bearer. Thus, a company with a registered capital of 100,000*l.* would be compelled to have 50,000*l.* of working capital if the purchase money were 50,000*l.*, and the vendors and promoters could not touch one penny of the first 50,000*l.* subscribed. If only 10,000*l.* working capital were required only 4*s.* in 1*l.* would be called up on the working capital shares, and if that amount had proved sufficient a special resolution might be passed at the end of the three years creating the necessary number of shares to be issued as fully paid, and exchanged for those originally issued. The appropriation of shares for purchase money should be strictly prohibited, as by that means the vendors would be prevented from taking unfair advantage of the shareholders, either by swamping the market with fully-paid shares or of making off with the purchase money, and leaving the company without working capital. The company would by the plan suggested always commence with working capital equal to the amount paid to the vendors, and as the shareholders empowered to vote at the meetings would all be *bona fide* investors, conflicting interests could not exist. Of course, such ideas as these require to be carefully worked out, but if adopted enterprise would be encouraged and benefit would result to— ONE AND ALL.

Aug. 3.

COAL-CUTTING MACHINERY—PRIZE COMPETITION.

SIR,—I noticed a letter on this subject in the Supplement to the *Mining Journal* of last week. The writer of it is evidently not cognisant with what has been done by other machines previous to that which he represents, or he would not make the statement as to the machine referred to being able to undercut the coal as close to the floor of the seam as any other machine. In the article in the Journal of July 25 there is no statement as to the cutting-bar not being geared in the sense he would have it. It is said distinctly that it consists of a bar cutter revolved by bevel gear. I may here remark that you are quite correct in your surmise, and for that reason, along with considerations of excessive wear and tear on this principle of cutter, it was abandoned by Messrs. Firth and Hurd, who patented the same long before Messrs. Worsop and Hill, whom Mr. T. A. Warrington represents. By kindly inserting this letter in this week's Journal you will correct what might lead to an erroneous impression.—*Wakefield, Aug.* 4. F. HURD.

ANGLO-FRENCH INTERCOMMUNICATION.

SIR,—The proposition to expend from 6,000,000*l.* to 15,000,000*l.* (according as various estimates are taken) in order to render unnecessary the pleasant little sea trip of 90 minutes between the French and English coasts having been once more brought to surface by the alleged favourable report of the Commission appointed by the French Minister of Public Works, calls for some few remarks with reference to the value of such a report, whether favourable or otherwise, and the prospects of any project for creating land communication between England and France proving a commercial success; so that no one who may lose their money by connecting themselves with the enterprise may afterwards plead ignorance as to the cause of their loss. It is an indisputable fact that the facilities for obtaining official commissions of enquiry in France are enormous; and the same principle has always been acted upon since Louis Philippe ascended the throne. It has its advantages and its disadvantages. Upon making the application in proper form, and complying with certain formalities, the appointment of an official commission is virtually sure, even if it were to enquire into the desirability of connecting Paris with Melbourne by means of a shaft with guide-rods and safety-cages. These enquiries are useful to inventors, as they afford a ready means of bringing their inventions prominently forward, and fewer grains of wheat are lost amongst the bushels of inventors chaff than in this country. But the facility for obtaining the commissions prevents any man of business from attaching any importance to their reports; as it is very generally known that the nomination of the members of the commission is practically in the hands of those applying for it, and that as soon as the commission is authorised the tenor of the report which will be made long afterward can be pretty well guessed.

Putting aside, then, the report, we have only to consider the commercial aspect of the matter, and the absurd statement that the North of France coalowners are afraid that the tunnel would increase the deliveries of English coal upon the northern French markets. The effect of the tunnel would be absolutely *nil* upon the French coal trade, for not an ounce of coal except that necessary for driving the locomotives would by any chance be carried through it, and very little, if any, other kind of merchandise except perishable goods that could bear heavy transit rates. This is a fact which has been proved by all mercantile and commercial experience, yet one or two instances in confirmation may be given. English coals, of similar quality and costing more at the pit's mouth, can compete with German coals at Berlin, which have only to be carried one-fifth the distance, because the English have only to bear water carriage, whilst the German coals must pay land carriage, which, although much less per ton per mile than in either England or France, almost excludes them from the market. In sending merchandise by water carriage the cost per ton varies but little (facilities for getting full cargoes and back freight being equal) whether delivered 500 or 2000 miles from the port of shipment; but land carriage in all cases rapidly increases with the distance. Take the case of 500 tons of Sunderland coal delivered at Boulogne (so as to give land carriage the full benefit in the comparison, though half-a-dozen such cargoes would overstock the market), and it will be found that ships could be had at 7*s.* 6*d.* per ton, so that the 500 tons would be carried for 187*l.* 10*s.* Now, to carry a ton of coal by railway will cost nearly ¾*d.*, but, to give the tunnel every advantage, let it be taken at ½*d.* From Sunderland to London is 268 miles; from London to Dover, 78 miles; from Dover to Calais, 20 miles; Calais to Boulogne, (say) 60 miles=426 miles, which gives a transport cost, at ½*d.* per ton per mile, of 17*s.* 9*d.* per ton, or 443*l.* 15*s.* for the 500 tons, against 187*l.* 10*s.*, showing that the use of the tunnel would involve a loss of 256*l.* 5*s.* upon a single order. If it be objected that Sunderland coal is taken though the South Yorkshire coal is nearer the assumed point of consumption, let it be supposed that our inland coal could be sold in France in competition with the North Country coal, and the comparison would still be against the tunnel, for there would still be more than 326 miles of land carriage to pay for, and the cost of taking the 500 tons to Boulogne would still be 339*l.* 11*s.* 8*d.*, against 187*l.* 10*s.*, or 13*s.* 7*d.* per ton, as against 7*s.* 6*d.* per ton; so that seaborne North Country coal could still be sold at Boulogne at more than 6*s.* per ton cheaper than the tunnel-carried coal of inferior quality from our inland coal fields.

What is true of coal is equally so of all other classes of merchandise, and this leads me to another erroneous comparison that has been made between the Channel Tunnel and the Suez Canal. Every argument that can be brought forward in favour of the canal tells against the tunnel, yet it is urged that because the canal has partially succeeded the tunnel is likely to do so. Just the reverse. The canal extended and facilitated water carriage, already shown to be cheaper, against land carriage. All the tunnel proposes to do is to provide additional land carriage, which is known by bitter experience to be so costly that it is never resorted to by men of business, except, as stated, for perishable goods, when water carriage is to be had. There is an abundant field for English capitalists to employ their funds profitably in developing industrial and commercial enterprise in France, but let not the names of English capital and French enterprise be associated with such a purely chimerical project as the Channel Tunnel. LIBRE ECHANGE.

Paris, Aug. 6.

THE RUBY CONSOLIDATED MINING COMPANY.

SIR,—I have been asked by the Chairman of the Ruby Consolidated Mining Company why, having been present at the meeting on the 5th inst., and being largely interested in the company, I did not vote against the resolution to the effect that the directors should return their fees, and that otherwise legal proceedings should be taken against them. My reason is simply that the resolution appears utterly childish. The directors had only taken a small portion of the salary to which they were legally entitled, and I have yet to learn that a body of shareholders can, by any proceeding of theirs, deprive third persons of their lawful property.

Some of the members present behaved in so riotous a manner, wasting the time of the meeting with personal observations of an irrelevant character, that the real object of the meeting, "How to recover the company's property," was altogether lost sight of. It is, therefore, to be hoped that the next meeting will be attended by the larger and more influential shareholders, who were scarcely at all represented at the last meeting. A LARGE SHAREHOLDER.

Lombard-street, Aug. 6.

HOW TO REVIVE THE MINING INDUSTRIES OF CORNWALL.

SIR,—I read with much satisfaction the letter of Messrs. McKean and Co., in last week's *Mining Journal*, and to a great extent agree with them; boring machinery, air compressors, and dynamite would do more to revive our local industries than anything else. We are getting more and more at a disadvantage in competing with other districts, because our natural prejudices prevent us from adopting anything useful unless it be invented by a Cornishman, and first introduced in Cornwall. Patriotism is all well enough as long as it pays, but in this case it seems that we are patriotic in the wrong direction. The German miners, who were not nearly so well placed as ourselves, are now surpassing us in coal and iron mining through giving their miners a technical education of the highest character, and thus they get cheaper fuel and iron than formerly, and can now be independent of us for other metals; yet in Cornwall, and we are here no worse than in other districts, partly owing to the high fees charged and partly from the mis-directed energy of the officers of the institutions, our mining and technical schools are neglected, and our miners remain ignorant.

Then, as to tin and copper, the Chilians, who have larger and more valuable deposits than ourselves and cheaper labour, use the best machinery and explosives, whilst we remain in the old course, the consequence being that Chilian copper is rapidly driving the Cornish out of the market and crippling the Cornish mines. It will be the same with Australia and tin; the Australians will have all the most approved machinery, so that with shallow mines and even less capital they will successfully compete with us, although their tin deposits may be no richer. I have quite come round to the opinion that unless we altogether change our views Cornishmen will be utterly extinguished as miners, and Cornish tin, like Tyrian purple, will be known only by name—to designate a particular character of product, and not to denote its source. Messrs. McKean and Co. have done good service in trying to change our apathy, and I hope the result will be to secure them a good sale for their machines, though I have never seen one of them in Cornwall yet. PROGRESS.

Redruth, Aug. 3.

CORNISH MINING.

SIR,—With better management Cornish mining would no doubt become as remunerative and popular as ever—but who is to manage better? It is merely a matter of time. Cornish mine agents do not usually go underground more than three days a-week, and stay about three hours each time, so that they are paid 8*l.* 8*s.* per month for going underground nine hours a-week, and seeing how things go on. There is too much skulking in our mines, and we shall hail the inauguration of a new system with unbounded satisfaction. Already the old rule-of-thumb mine agents are giving way to a class of men who, while understanding the principles and practice of mining, can call science to their aid when any matter of importance is to be decided, and in this alone show their system of working to be far superior to the old traditional one. Formerly the principle adopted in cross-cutting for lodes was "Where 'tis, there 'tis," but now the rising generation, by means of mathematical calculations, cease to work in the dark, and aided by the light of science can accomplish an amount of work which old "bal" captains would deem incredible. L.

THE DE BROKE MINE.

SIR,—I observe in the *Mining Journal* of July 25 that Messrs. T. Hodge and Son, in their report of July 21 on this mine, say—"There is hardly sufficient water to drive the crusher, consequently no lead can be cleaned." Now, I wish to ask Messrs. Hodge is this report really correct, or is it simply an excuse for the length of time they have taken to complete the concentrating machinery? I expected to have seen an account of some lead being sent to market from the mine long ere this, more especially after reading the following report, dated May 11, and signed "T. Hodge: "—"I have offered the carpenter and smith 7*s.* 6*d.* each man extra money if they will get the dressing machinery in motion by the end of the present month"—*i.e.*, May. Now, I ask is it not a fact that it is not ready to be put in motion even now, notwithstanding that they have been working at it all the time since? There is evidently I fear something irregular as regards the management of the mine, which if not explained I hope the directors will at once see to and oblige—

Aug. 3. A LARGE SHAREHOLDER.

THE RED RIVER.

SIR,—I cannot see what use there is in continually writing about the tin taken out of the Red River, unless it is thought that by this means those in authority will be brought to see the necessity of adopting some means to prevent it. I have been informed that a person has offered to erect on any mine in the county an apparatus that shall catch, classify, and concentrate every particle of tin escaping from the various dressing operations, at his own expense, provided it does not succeed as stated, and that it has been refused by one of our most noted managers to whom it was first offered, though its first cost will in no case exceed 100*l.* Of course it must be evident, if such terms as these will not be accepted, the tin is going where it is intended to go. ANOTHER WELL-WISHER TO MINING.

[For remainder of Original Correspondence, see to-day's Journal.]

GOLD IN NEW ZEALAND.—A correspondent, writing from Wellington, May 1, to the *Times*, says—"Apropos of Auckland, I am glad to observe that a very decided improvement is manifested in the Thames gold fields. The returns of last month show an increase of 3000 ozs. in the month's produce: there has been a marked and steady advance for some time past, and as the working of these mines is under much more healthy conditions than during the time of their great prosperity, public confidence in their permanency and future prospects is being fast restored. Very favourable accounts are also coming in with reference to the reefs on the West Coast gold fields of the Middle Island. Notwithstanding this, however, and spite of the constant warnings of failure and disaster authoritatively published, there is a considerable efflux of diggers from this to the Palmer River gold fields in Queensland."

MINING IN CALIFORNIA.—A correspondent, writing from San Francisco (July 5) to the *Times*, says—"Our mining interest continues to increase notwithstanding the rude shocks our credit has received abroad owing to the manipulations of dishonest speculators. Several quicksilver mines of great value have been developed, and the great increase in the production, it is hoped, will eventually enable our miners to obtain the metal for working purposes at a lower price than they now pay for it. Last year the yield of the various quicksilver mines amounted to 34,000 flasks, but the competition of cheap labour in other countries is so unfavourable that one of our principal companies, the New Almaden, has paid but one dividend for over ten years, although several million dollars have been invested in the mine. The next profitable, because the most economically worked, are the hydraulic gravel mines, which are now attracting great attention, and in which a large amount of British capital has recently been invested. The famous mines on Sucker Flat and its vicinity are good specimens of our gravel mines. Here hills have been swept away, and the beds of ancient rivers of the Pliocene Tertiary age uncovered. These are filled with auriferous gravel to the depth of several hundred feet, and in some mines have yielded at the rate of 25 cents to the cubic yard. One company alone, since their incorporation, have taken $1,700,000 out of their claim, and it is stated often in a 20 days' run $50,000 was taken out of the mine at a cost of less than $10,000. A number of other mines have been worked here for years with most extraordinary success. Some of these still make magnificent returns to their owners, but others, which will probably be put on the London market, if they are not there already, are well nigh exhausted. From personal inspection of the ground it is certain that a large portion of undeveloped auriferous gravel country still remains in this neighbourhood, which presents a field for capital and enterprise far more certain and profitable in its results than any speculation in *effete* or worked-out mines. The odium incurred by Californians on account of their sharp practice in the sales of mines should be shared by their British cousins who purchase only for speculative purposes, and put their mines on the London market at an advance of three, four, and even five times their original value. Too much caution cannot be exercised by the British public for their own protection in this respect, and a reference to some respectable authority in this city before purchasing, in order to find out the value of a mine, is a precaution which should be adopted in all cases."

The Linthorpe, arrived in the Thames, brings for the Rio Tinto Company a cargo of 800 tons pyrites, sold for arrival.

Meetings of Public Companies.

LONDON AND COUNTY BANK.

The half-yearly general meeting of proprietors was held at the Cannon-street Hotel, on Thursday,

Mr. FREDERICK FRANCIS in the chair.

Mr. GEORGE GOUGH (the secretary) read the notice convening the meeting, and the report and accounts, which will be found in our advertising columns, were taken as read, and showed that, after paying interest to customers and all charges, allowing for rebate, and making provision for bad and doubtful debts, the net profits amounted to 125,830*l.* 16s. 1d. Added to 23,917*l.* 13s. 3d. brought forward from last account, a total of 149,748*l.* 9s. 4d. Out of this the directors declared a dividend for the half-year at the rate of 20 per cent. per annum (120,000*l.*), and after reserving 468*l.* 15s. to meet interest accrued on new shares there remained a balance of 29,279*l.* 14s. 4d. to be carried forward to profit and loss new account. The dividend of 2*l.* per share will be payable on and after Aug. 17.

The CHAIRMAN, in moving the reception and adoption of the report, said that, in accordance with the custom which had long been followed at their meetings, he would before formally putting the resolution offer some few general observations upon the prospects of trade and agriculture; and, looking at the appearance of the country, he might congratulate them that there was promise of an abundant harvest. During the past two years the growth of corn had not been prosperous, but this year there would certainly be a fair average crop. Gentlemen from Kent might be inclined to say, "But how about hops?" but hops were an uncertain crop, always affected by the weather, and a little favourable weather might give a different appearance to the hop yards of that county. The farmers of the Home Counties were to be congratulated upon the termination of the unfortunate dispute between themselves and their labourers, which, he continued to think, was occasioned by the improper interference of outside strangers. As to trade and commerce, there was every indication that the coming half-year would be marked by much prosperity. At all events, so far as banking balances were concerned, there was nothing to find fault with. (Hear.) Turning now to the accounts, it would be seen by the debit side that the amount of paid-up capital was 1,200,000*l.*, and that received upon the new shares 75,000*l.* The reserved fund stood at the maximum allowed by the Deed of Settlement—half the paid-up capital, or 600,000*l.*, and 37,500*l.* in respect of the new shares of the company. The next item which appeared was that of amount due by the bank for customers' balances, 18,928,918*l.*, which, as compared with the corresponding period of last year, showed an increase of 1,107,000*l.* The liabilities on acceptances covered by securities were for 3,187,457*l.*, or an increase of 72,000*l.* The gross profits for the half-year, after making provision for bad and doubtful debts, and including 23,917*l.* brought from the last account, amounted to 401,690*l.* On the credit side cash in hand and at call amounted to 5,275,379*l.*; investments to 2,051,726*l.*, or, together, over seven millions and a quarter sterling—the largest figure yet attained; bills discounted, &c., 13,402,222*l.*, about 800,000*l.* more than last year; liabilities of customers for drafts accepted, the same as on the debit side, 3,187,457*l.*; freehold and leasehold premises, 304,309*l.*, or an increase of 27,000*l.*; interest paid to customers, 86,974*l.*, or less than in the past half-year; and expenses, 122,300*l.*, as nearly as possible the same; the total cast-up on both sides being 24,430,371*l.* The gross profit amounting to 401,690*l.*, it might be asked what had the directors done or proposed to do with it? Why, they had paid the interest to customers and the expenses as above; carried 42,666*l.*, to the new account for rebate on bills not due; reserved the sum of 468*l.* to meet interest accrued on new shares; and now they declared a dividend for the half year ending June 30 last at the rate of 20 per cent. per annum, or 2*l.* per share, free of income tax, payable on and after the 17th inst., which would absorb 120,000*l.*, and leave 29,279*l.* to be carried to the next profit and loss account. The amount divided for the corresponding half of last year was 100,000*l.*, so that it required 20,000*l.* more to keep up the dividend to the same point on the old and the new capital together, which additional profit the bank had earned, notwithstanding the low Bank rate of the half year, raised that day to 4 per cent. Taking the average, the rate for the six months ending the 30th of June last was 3*l.* 10s. 6d., against 4*l.* 10s. 6d. for the same six months of 1873. There was one item on the creditor side of the account as an asset, under the head of premises, that was somewhat larger than it was last year, and he might state plainly that the question of premises had been often to the directors a question of considerable difficulty. The business was increasing to the extent of about 1,000,000*l.* a-year of deposits, and that business required more room for its accommodation, and he need scarcely say that to acquire additional premises in Lombard-street was a matter of great difficulty and great expense. He believed they were now in a position to increase the accommodation of the head office so as to make it suitable for the business; but in the next half-year's accounts it would be seen that that had been done at considerable cost, not more, however, than the property was worth, and not more than what he considered to be the proper proportion between the cost of their premises and the amount of their balances and capital. During the past year about 4000 new accounts had been opened, while the number of shareholders had increased in the half-year by 400, and, on the whole, it might be confidently said that the report and balance-sheet exhibited a general extension in every department, a result only to be secured by devoting the closest attention to management. (Hear, hear). With regard to the question of retiring allowances for the staff, the head officers had not yet had sufficient time to elaborate a scheme, but at the next meeting the directors expected to be able to submit one which they hoped would meet the entire approval of the proprietors. (Hear, hear.) He concluded by formally moving that the report of the directors be received, adopted, and printed for the use of the proprietors.

Mr. W. CHAMPION JONES seconded the resolution, and after some congratulatory remarks from Mr. MCGEORGE and others, it was put to the meeting and carried unanimously. A cordial vote of thanks to the Chairman and directors terminating the proceedings.

BLAEN CWMBACH STEAM COAL COMPANY.

The statutory meeting of shareholders was held at the London Tavern, on Tuesday,—Mr. R. W. BILLINGS in the chair.

The notice convening the meeting was read.

The CHAIRMAN said that the meeting was purely formal in its character, being that which the Legislature made obligatory under the Companies Act; but there were circumstances connected with this colliery that enabled him to say a few words by way of encouragement, and which, he thought, all shareholders would say he was fully justified in making. The lease had been executed, and works had been commenced upon an extensive scale. The shaft was being sunk vigorously, and preparations were being made for laying out the platforms; the ventilating shaft would be begun directly, but it was proposed to commence working the mountain seam, and by means of a temporary tramway they would be able to work both top and bottom. When the shaft had been sunk, and they were able to work both seams, the rails could be removed and utilised in the pit. There would be nothing lost—on the contrary, they would be enabled thereby to increase their output. The guaranteed interest on the shares had been amply provided for, the necessary funds having been placed in the name of Mr. Tippetts, a director, and himself, the Chairman. The interest would be paid as it fell due, and they would only be too glad to get rid of their trust. He considered they had been fortunate to secure the services of Mr. Kitto as their engineer—he was not only practical in himself, but always ready to listen to the advice of others—nothing exceeded the harmony with which they worked together, and as he (the Chairman) often visited the spot, every question of importance was discussed and determined on the spot. It was supposed when they started they would have had to incur a very considerable cost, and he knew, as an architect, the difficulty in keeping within estimates. But a considerable saving had been effected by the fact that a new railway was about to be constructed—the New Forest Railway—of something like a half mile from the company's property. This railway was to be constructed in connection with a colliery about to be opened some 500 yards distant, and would run past this company's stages, so that this large expense would be saved. Nothing could exceed the kindness which the owner of the railway and colliery—Mr. Walker, of Blaenavon—had shown towards them in offering the use of his railway until their own had been completed. He did not see there was any reason for believing there was one uncertain element to mar the success of this enterprise. Both Mr. Kitto and himself believed the coal would be reached at a less depth than that originally contemplated, while the necessary expenditure, for the reasons already stated, would be considerably less than the amount embraced in the original computations. On the whole, he did not see there was any reason to doubt that they had a very good chance of returning substantial dividends upon the capital invested, and he need hardly say that no effort would be wanting on the part of the directors to secure that desirable end.

Mr. KING asked if the directors were on friendly terms with the buyers of the coal?——The CHAIRMAN said that was a question of supply and demand.

Mr. ROSS had generally understood it was not so much a question of supply and demand, as of quality.——The CHAIRMAN said the coal had been pronounced to be of a first-rate quality—no shareholder need have any doubt upon that point.

Mr. ROSS asked if the directors had any doubt as to the sufficiency of the present called-up capital?——The CHAIRMAN said the directors considered they had ample capital in hand unless some unforseen contingency had to be provided for, or it became necessary to supply extra plant for the purposes of the colliery. For everything necessary to place the property in a good working order he had no doubt they had a sufficiency. He added that a great many shareholders had paid up in full.

Mr. KITTO, in reply to questions, stated that there could be no doubt as to the quality of the coal. It was quite equal to any he had seen in the district; it was a steam coal, although by no means a bad house coal.

The CHAIRMAN remarked that there was always a large demand for steam coal; indeed, the demand was so enormous that the price seldom varied. It was sold at Briton Ferry, where vessels were at all times waiting for it.

Mr. THOMPSON had heard it stated that another shipping port was about to be made, equal to Cardiff or Swansea.

Mr. BEDFORD explained that it was proposed to make Neath a shipping port by making the river navigable up to that place. He explained that Briton Ferry was on one side of the river, and a large rock was on the other side, and it had been for years proposed to place here two Armstrong gates to enable vessels to float up the river. For some reason or other it had been strongly opposed by the people up there, but they now gave their adhesion to it, and had subscribed the necessary capital for carrying it into effect. When completed it would be the means of considerably reducing the cost of carriage for this company's coal; it would save the cartage to Swansea, and instead of Swansea being the great shipping port Neath would be. It would save something like six miles of railway carriage.

Mr. KITTO, in reply to further questions, stated that there was no waste, the coal being sold as it came up from the pit, and the principal part was taken to the Cornish mines. There was always a good demand for it at a remunerative price. He reckoned that in about ten weeks from the present time the pit would have reached the coal, having sunk 40 yards in about three weeks; the shaft was 8 feet clear, and bricked throughout. A contract had been made for the entire sinking, at 3*l.* per yard, the company finding materials. The local tenders were 8*l.* per yard.

The CHAIRMAN said the company in this respect, too, had the advantage of Mr. Kitto's local experience; for when he found the local tenders were 8*l.* per yard he brought over his own men from other places, where they had been engaged in similar work.——A vote of thanks to the Chairman and directors was then passed.

The CHAIRMAN, in acknowledging the vote, expressed a hope that when he next had the pleasure of meeting the shareholders he should be in a position to communicate information of a substantially satisfactory character.

The meeting then separated.

THE WELSH FREEHOLD COAL AND IRON COMPANY.

The third annual meeting of shareholders was held at the Ship and Turtle, Leadenhall-street, on Saturday,

Mr. PAYNE in the chair.

Mr. W. P. BELLISS (the secretary) read the notice calling the meeting. The directors' report was taken as read.

The CHAIRMAN said, before asking the shareholders formally to receive and adopt the report and accounts, he supposed they would expect him to say a few words with regard to the business of the company. As they would see by the report, their railway was completed on June 11; but he should mention that before that time they had been able to get some coals to market—that was before the contractor finished the line. Since that time they had pushed ahead, and up to June 24 had had a weekly output up to 1025 tons. Since that time, and until last week, the amount had been nearly the same; but during last week there had been a considerable depression in the coal trade. However, the directors had been able to sell their coal at a fair market value—in fact at better prices than most other collieries. He could say this from experience, being a large coal buyer himself, and he had offers made at reduced prices. With the exception of their small coal, he did not think they had made a sale under 13s. or 14s. per ton, and when he informed the shareholders that they had obtained 17s. 6d. per ton he did not think they would have cause to find fault at the small difference which had taken place in consideration of the difference in the price of coal. The directors had been looking round them to see how they could reduce the expenditure, and they believe they can reduce it to a considerable extent. They first proposed to attack themselves. Up to the present time there was about 2000*l.* due to them for fees; they proposed to forego these fees, and give their shareholders their services to the end of this half-year without any charge whatever. (Hear, hear.) They were determined to make the company a success. At Briton Ferry they used to have an agent with a commission; but as this arrangement was somewhat expensive the directors had appointed a gentleman there in whom they had every confidence, and the difference between the pay to the present agent and the commission to the late one would amount to 700*l.* or 800*l.* Further than that the directors believe they can reduce the expenditure by 300*l.* or 400*l.* more; at the same time, looking at the matter in a business-like manner, and without affecting the efficiency of the colliery, he thought that the only other matter to which he had to call the attention of the shareholders was the resolution which had to be proposed; but he would say very little about that, as he had no doubt there would be a good deal of conservation on the matter. With respect to the boring, the Diamond Rock-Boring Company were at work on the property; but, unfortunately, on Thursday night their drill broke down, and they had to stop to repair it. He had specimen of the boring here, which showed by the usual indications that they were on the top of the Resolven seam; and their manager, who had had a great deal of experience, informed the board that his opinion is that they are now within 5 yards or 6 yards of the Resolven seam. The moment the seam is struck a circular will be sent round to all the shareholders to acquaint them of the fact. All the directors asked of the shareholders was their support. The directors were working in the business as if it was their own, and, for his own part, he wished he had nothing to do with it—he did not mean from a financial point of view, but looking at the amount of work it had involved—and he felt confident his brother directors would support him in this. He believed now the colliery is open, and the railway almost completed, that within a very short time—the moment a rise takes place in the price of coal—the Welsh Freehold Coal and Iron Company would be second to none in the kingdom. He might tell the shareholders also that they could at the present moment, if they chose to press the output forward, get 2500 tons out; but there was a difficulty in getting rid of the small coal, as at the present time there are only two or three people in the market taking small coal, and the consequence is that nearly every colliery is trying to get rid of their small coal at the same time. This company had, however, been very fortunate, for one firm took 3000 tons from them at the beginning of the month, and he believed they would continue to do so. With regard to the large coal they had had no difficulty in getting rid of the whole amount offered for sale. He would be most happy to answer any questions which the shareholders might ask, and to give any explanation to the best of his ability. In the meantime, he would formally propose that the report and balance-sheet as presented to the shareholders be received and adopted.——Mr. ADAMS seconded the motion, which was carried unanimously.

Mr. C. H. WARING begged to propose the re-election of Mr. Payne as a director of the company. He had devoted a great deal of time to the affairs of the company, his services having been immensely valuable to the board. With respect to the coal trade, for the past few weeks it had been certainly very remarkable, and the collapse had been most extraordinary. He had been a manager of collieries for 40 years, and from his experience he did not believe it would last very long.

Mr. C. HANSON seconded the motion for the re-election of Mr. Payne, which was also carried.

The CHAIRMAN, having briefly returned thanks, said the next question was the election of an auditor. At the last general meeting it was left to the directors to remunerate the auditors, for the auditors at that time had the opening of the books, as the then secretary was not competent to keep their books. Their new secretary (Mr. Belliss) was a very competent gentleman, and the books were all ready at the quarter day, which was very creditable to the secretary. (Hear.)

Mr. ADAMS proposed the re-election of Mr. Edwards (of the firm of Messrs. W. Edwards and Co.) as auditor of the company.——Mr. LOCK seconded the motion, whereupon Mr. GREIG proposed that Mr. Stewart should be auditor, and Mr. BENHAM seconded the nomination.

After a short discussion, the name of Mr. Stewart was withdrawn, and Mr. Edwards was re-elected auditor, at a remuneration of fifteen guineas per annum.

Mr. MILLER (solicitor to the company) said it was now his duty to explain to the shareholders the circumstances under which the company acquired the leasehold of the premises which they now occupy on the Nant-y-Bar coal estate. This property lies quite adjacent to the property of the company, and contains some very valuable seams of coal, which can be worked from the workings of this company, and it was deemed very important that this company should acquire the coal in this property if they could do so on reasonable terms. By persons who had seen the collieries he was told the terms asked were very reasonable. This would enable the company to obtain the property at a dead rent of 700*l.* a year, with a royalty of 7d. per ton. However, the lessors declined to take the company as their lessees, and, under these circumstances, three of the directors consented to undertake to become lessees, so that the property should not be lost to the company, and undertake the responsibility of 700*l.* a year on their own shoulders. At that time it was suggested that some inducement should be given them—for the responsibility they should have an additional royalty of one halfpenny per ton each. The three directors who had become the lessees were the Chairman (Mr. Payne), Mr. Waring, and Mr. Stuart, and they were willing to grant a sub-lease to the company for 700*l.* a year dead rental, and 8½d. per ton royalty. As the legal adviser of the company, he thought it was only fair to tell the shareholders this, and he, therefore, proposed that the arrangement should be approved, and that the company should accept the lease, and indemnify the three directors from all the covenants and engagements contained in the leases. A good deal had already been taken out of the estate, and the underground workings are now being carried on. The great reason which induced the directors to take the Nant-y-Bar estate was that there is a dip of the land, and the Resolven seam, which they were all so anxious to reach, can be reached by a much less sink than from the property of this company—in fact, about one-half the depth.

The motion having been seconded by Mr. SNOOKE, some discussion took place as to whether the directors could legally take the additional three halfpence per ton royalty, as it would be making a profit under the company, which was against the Articles of Association.——The CHAIRMAN then said he and his two brother directors were quite willing to forego the additional amount, and would let the company have the property for what they had given for it. (Hear, hear.)

The arrangement was then approved of, and the royalty reduced to 7d. per ton.

A vote of thanks to the Chairman and directors closed the proceedings.

PLYNLIMMON MINING COMPANY.

The annual meeting of shareholders was held at the offices, Austinfriars, on Thursday,—Mr. WINGROVE in the chair.

The notice convening the meeting was read. The accounts showed a balance of assets over liabilities of 681*l.* 16s. 9d.

A special report, by Captain Hodge, of Caegynon, was submitted, which stated that although the mine in the bottom is very poor indeed, he feels persuaded that deeper workings will lead to a change of rock, in which, without doubt, a rich lode will be the result. The report of the manager states that for the past year drivages, with the exception of 30 fathoms in the adit level, have all been a series of disappointments, which have considerably lessened the returns. The stopes throughout the mine continue their average yield of lead ore, and should the operations proposed open out according to expectation, they will have no difficulty in keeping up the present raisings throughout the coming year. During the past winter a considerable amount of work has been done, the erection of 150 fathoms of pulley stands from drawing machine to new shaft, shaft tackle, cutting ground for and laying down incline, erecting drum, &c., which was attended with a good deal of delay in consequence of the wet weather experienced. The large pumping-wheel, which caused a deal of trouble and expense during the past winter, has also undergone some very extensive repairs, and is now stronger than when new. All the other machinery throughout the mine is in good working order. The monthly cost during the past year was greatly increased by the new work and necessary repairs. He hopes now to go on with a considerable reduction, and every economy will be used justifiable with the proper development of the mine. Drawing and dressing are progressing satisfactorily, and good progress is being made towards another sampling at an early date.

The CHAIRMAN said he should be glad to afford any additional information not embraced in the report just submitted. He was sorry those reports were not more encouraging, the past year's operations having resulted in a series of disappointments to the board as well as as to the shareholders. The mine was poor in present bottom. These contingencies happened in all mines, and an important change for the better might take place by one stroke of the pick; indeed, some points presented indications which led the directors to hope and believe improvements would soon be reported. Last year's operations had resulted in a loss of 1392*l.*, which was serious, more especially as since the commencement of the company there had been sold 1134 tons of lead, producing 14,500*l.*, with the expenditure of working capital of 2700*l.* for plant, &c., making a total of 17,200*l.*, without, as yet, the shareholders having received a dividend. These were circumstances entirely beyond the control of any board, and all they could do was to induce energy and economy, and to keep a vigilant eye upon the accounts rendered, to see if everything was kept within reasonable limits commensurate with the efficient development of the property. The north lode had not yet been cut, but, probably, would be within four months; that was a point entirely undeveloped, and they trusted it would turn out well. They had every chance in their favour of the mine improving in depth, and the reserves were estimated at a sufficient amount to carry them on for months to come. They were now sampling 40 tons per month, and if the weather continued favourable a similar rate of return would be maintained. While that was so far satisfactory it did not place the directors in the position they desired—to be able to declare a dividend. He then moved that the report and accounts be received and adopted.

Mr. PYNE asked what probability there was of returning 40 tons of lead per month, having only hitherto returned 40 tons bi-monthly?

Capt. GARLAND said that during the past year they had been unable to tram the stuff, but they were now able to draw more stuff. Since he had written his report he had carefully considered the question of reserves, and estimated them at about 600 tons. Almost all the ore returned during the past year had been discovered during that time.

Mr. PYNE believed that the ground was very hard in the cross cut north towards the supposed lode, and he was told there was no prospect of finding the lode.

Capt. GARLAND saw no reason whatever why they should not find the lode; it appeared strong at surface, and it existed in the Snowbrook Mines.

The CHAIRMAN said there was one point of promise—the 12 end, where the lode contained small strings: they were driving north to reach the main part.

A SHAREHOLDER asked the value of the lode at the Snowbrook Mines?——Capt. GARLAND did not know its exact value, but he knew it had yielded a great deal of lead. The mine was about two miles distant. As to the north lode, he had been deceived as to the measurement, having been told it was 60 fathoms distant, whereas it was 80 fathoms, while the ground was very hard, which impeded their progress but he expected to cut it in about four months.

Mr. F. COPE seconded the proposition for the adoption of the report, which was put, and carried unanimously.

Messrs. Brandt, Stanfield, and Co. were re-appointed auditors.

The CHAIRMAN mentioned that on May 28 the balance of assets over liabilities was 681*l.*, but including the 40 tons to be sampled next week, and deducting another months' cost, the available balance would be 850*l.* He hoped when they met next he should be able to present a much more encouraging report than had been submitted upon the present occasion.

A vote of thanks to the Chairman and directors closed the proceedings.

WILLOUGHBY MINING COMPANY.

The annual meeting of the shareholders was held at the offices, Austinfriars, on Tuesday,—Mr. W. C. BULLER in the chair.

The LONDON MANAGER read the notice convening the meeting.

The report (which appeared last week) was taken as read.

The CHAIRMAN said the main object of the present meeting was to consult with the shareholders as to the best means to be adopted to secure the additional capital necessary to bring the mine into a remunerative condition. When he last had the honour of addressing the shareholders he mentioned that the mine itself was looking extremely promising, but that the state of the finances engendered some anxiety. Both these statements had been most fully borne out, for while the funds had been wholly exhausted the mine had continued to steadily improve, and in the last official report Capt. Nottingham says:—"It never looked so promising as it does at the present moment." The report, dated yesterday, is as follows:—

Aug. 3.—The No. 4 shaft, sinking on Goddard's lode, is producing some splendid rocks of lead, worth fully 1½ ton to the fathom. There are two men sinking another small trial shaft about 12 fms. still further south on this lode, and the lode here is beginning to produce a little lead and blende, and bears a very promising appearance, such that I am expecting to see something the same here as in No. 4. I consider these places, with the new run of ore we met with in the 23 south, on new lode, have doubled the value of the mine, and bears out what I have before stated as my opinion—that there is a body of ore ground lying to the south of us yet to be opened up. I regret to say we are yet without water for pumping. We are proceeding with dressing up some of the blende stuff we have on the floors. I expect we shall have 20 or 25 tons for our sale this month, of better quality than the last, as we are turning aside more tails and lighter stuff.—H. NOTTINGHAM.

The explorations so far developed results analogous to nearly if not the whole of the greatest lead mines—productive lodes near to and at surface, then the interposition of a band of hard and unproductive rock, followed by increasingly productive rock. In this respect Willoughby had proved to be the exact counterpart of most rich lead mines, for it had had a lode at and near surface, which yielded most satisfactory returns; it failed at the 13, but at the 23 new runs of ore were being opened out. The mine was originally opened by some trial shafts upon what was called Goddard's Lode, which failed in driving back in the 13 fathom level; but, as he had already stated, the indications in the 23 were such as to induce them to believe that productive ground was about to be again opened, and in another place the lode was worth 1½ ton per fathom, and yielding splendid stones of lead. Another place further south was being tested, from which similar results were confidently anticipated when a somewhat greater depth had been reached. The important feature south was that the grit would be reached in junction with the slate or killas—where large deposits of lead were always expected to be found. Upon the new lode lead had been cut worth where cut 2 tons per fathom, and now 1½ ton. In driving north a caunter lode had been intersected in the 13, worth ½ ton per fathom. The development of these most material points was in satisfactory progress when the funds became exhausted; but the directors being most anxious to test at least one of those points, borrowed 500*l.* from the bankers on their own responsibility. By the expenditure of this amount they fully expected to obtain good results, but the dry weather set in and stopped the operations, and now the liabilities exceeded the assets by 615*l.* In this state of things the directors had no alternative but to appeal to the shareholders, and to adopt some course to put the mine in a paying condition. He was most anxious to see the cross-cut reach the caunter lode, because it was thought that the new lode would prove to be one and the same, in which case it was only a fair assumption that important results would be developed at this point. In the present condition of the mine it would be most suicidal to give it up, and the plan suggested by the directors seemed at once most effective and satisfactory—

that the present company be reconstituted, and that a new company be formed in 12,000 shares of 1*l.* each, of which 6000 should be issued as fully paid-up: 4000 paid-up shares and 1000*l.* in money to be given for the purchase of the property, and the other 2000 fully paid shares to be distributed as a bonus rateably among the subscribers for the remaining 6000 shares. There would thus be a net sum of 5000*l.* for the further development of the mine, which the directors confidently believe would lead to very successful results. If the shareholders did not like that plan preference shares might be tried, although that plan was not recommended by the directors. He then moved that the report and balance-sheet be received and adopted.

Mr. PYNE seconded the proposition. He was at the mine some two months since, when he found the lower levels looking better than he had ever before seen them. Goddard's lode had improved, and was worth quite 1½ ton of lead per fathom, and nearly 1 ton of blende. The new lode in the 23 had also improved, a branch of lead coming in worth 1½ ton per fathom. It would be most regrettable if the shareholders now abandoned the mine; if it were given up other parties would come in and reap the advantage of all the work done up to the present time, therefore he hoped the plan proposed by the directors, or some other plan, would be adopted, so as to raise the necessary capital to bring the mine into a remunerative condition.

The report and balance-sheet were received and adopted.

Messrs. C. J. Hill and W. Jardine, the retiring directors, were re-elected, and Messrs. Brandt, Stansfield, and Co. were re-elected auditors.

Mr. CLEMENT advocated the re-construction of the company as the best means to ensure the necessary capital, and suggested that a special general meeting be called for the purpose of considering the matter.

Mr. MURCHISON drew attention to the fact that there was no money wanting except for the opening out of the mine.

The CHAIRMAN, in reply to a question, stated that 2000*l.* over and above their present liabilities would be ample to bring the mine into a profitable condition.

After some further discussion the directors were requested to take the necessary steps to carry out the plan set forth in the official circular.

A vote of thanks to the Chairman and directors closed the proceedings.

RUBY CONSOLIDATED MINING COMPANY.

The adjourned general meeting of shareholders was held at the offices, Gresham House, on Wednesday,

Sir G. BOWYER, Bart., M.P., in the chair.

The meeting had been adjourned for the purpose of enabling the committee of investigation to prepare and submit their report upon the affairs, position, and management of the company.

The report was taken as read, but before the proceedings commenced Mr. Lee (one of the two shareholders who formed the committee) read a letter he had received from Mr. Hartmont, in which it was stated that many of the statements in the report were erroneous; and another from the secretary, referring to Mr. Askew's application to have his name removed from the register.

The CHAIRMAN said the directors wished most publicly to dissociate themselves entirely from all the transactions of Mr. Hartmont. In the proceedings at the Mansion House Mr. Forsyth (Elmsley and Forsyth), the solicitor of Mr. Hartmont, stated upon oath that he knew nothing of the agreement between Mr. Hartmont a director, and Mr. Heynemann, the vendor; the other directors only became acquainted with it when the legal proceedings were commenced, when the fact became disclosed in Mr. Askew's affidavit. Mr. Hartmont's reply was that it was a private agreement between himself and other persons, and was not of the nature alleged in Mr. Askew's affidavit. The directors knew nothing whatever of it—its existence was not disclosed by Mr. Hartmont to his brother directors. As to the report of the committee of investigation, he must say, with all due respect, that it only showed him how very easy it was to find fault, and also how much easier it was to say after the fact what should have been done than it was to act at the time and decide what should be done. The committee of investigation had met the directors—that was to say, Mr. Lee had met the directors—only once, when various matters were discussed, and he believed the discussion that then took place had been of very great utility. He (the Chairman) expressed a hope to Mr. Lee that before the report was published it should be submitted to the board, so as to have the opportunity of making some remarks upon it before criticising their proceedings. That was not done, the consequence of which was this report had been issued without the directors having had any opportunity of offering explanations which, in their opinion, would have fully justified all they had done, and at the same time would have made it unnecessary to cast any reflections upon them. He said this in the most friendly spirit towards the committee of investigation. The committee say—

"In examining the letters sent to and from the company we note that only 15 letters were ever written to Mr. H. Heynemann, although 16 cablegrams appear to have been sent; this fact alone, we think, proves that there was gross carelessness on the part of the management in London."

No doubt it was the duty of the secretary to acknowledge the receipt of those letters, and several times the directors had to reprehend him, but when letters of Mr. Heynemann really required an answer he (the Chairman) invariably drafted the reply himself. No letter was unanswered which needed a reply. He then came to another point. The committee say—

"In contrast to this, the correspondence on the part of Mr. Heynemann appears to be exceedingly voluminous and complete, as well as evidencing great care; the same may be said of the accounts, with the exception of one item, of which mention will be made hereafter."

All these accounts were gone into by himself (the Chairman) and the secretary, and the committee would be able to tell the shareholders that every item in those accounts had been vouched, and bore his (the Chairman's) initials. The committee then say—

"In January, 1873, the directors appointed Mr. Nelson Girdlestone to act as their confidential agent to examine the mines, and report generally on the affairs of the company. His report having been issued to all the shareholders we need take no further notice of it here, except to draw attention to the introduction signed by Sir George Bowyer on the first page, the last paragraph of which reads as follows:—'The United States patent for the mines has been issued;' no warrant for this statement appears in any of the letters to which we have had access."

Mr. Nelson Girdlestone had told him (the Chairman) that the patent had been issued—it was purely a technical point which must be taken in connection with what Mr. Lee had said about those patents, and, probably, would be told by Mr. Bernard. The committee of investigation are of opinion that it would have been an advantage to the company had the board accepted the offer made by Mr. Jaffé, a holder of 300 shares. This gentleman wrote on Dec. 7, 1872, for the permission of the directors to allow Mr. W. Carruthers, of Eureka City, mining engineer, or his nominee, to examine the mines. The fact was this was the first time he had heard of Mr. Jaffé or of the letter, and if he had heard he might probably, have come to the conclusion that the offer was one that could not be prudently accepted. The directors thought that, instead of sending out some unknown person it was much more prudent to send Mr. Girdlestone, the brother of their auditor, whom they knew to be a thoroughly honest person. The matter was fully considered whether they should send out a miner or an accountant and a man of business. After several board meetings, the conclusion was come to it would be best to send a man of business, and the more especially as the mines were under the management of a man of great experience and a good miner, and recommended by Mr. Clayton. This manager (Mr. Dougherty) was conducting the mine to their most perfect satisfaction. With regard to the directors' fees, when Mr. Lee met the directors he said he thought that when he (the Chairman) drew his fees the funds of the company were not in such a condition that it was prudent to do so. He (the Chairman) said he thought differently, but at the same time, if the shareholders or any of them wished him to refund that portion of his fees he was perfectly ready to do so. He had worked very hard for two years, and had received only six months' fees, but he had, accordingly, handed his cheque for 209*l.* to the solicitors of the company for the purpose of refunding his quarter's salary. Whenever money was wanted he always handed his own cheque—in fact, this meeting could not have been held had he not disbursed several items. The committee then go on to say that—

"A letter was received from Mr. H. Heynemann advising his draft for 900*l.*, which was payable three days after sight, being, in fact, six days after presentment. The directors would seem to have been in a fix—they could not deny the credit, but the money was not in hand, in consequence of their having drawn their fees, and it was only when Mr. Hartmont had, on July 3, 1873, paid the 880*l.* referred to under the head of his shares, that they accepted the bill, and it must be borne in mind that it was by payment of this sum that the amount due on Mr. Hartmont's shares was finally compromised or settled. The pressure thus brought to bear upon them to conclude this compromise is very evident, and was caused by their having drawn their fees or salaries when they knew there were no funds in hand available for that purpose, admitting, for the sake of argument, that they were entitled to them. Mr. Hartmont received credit for 500*l.* as directors' fees, in the account between himself and the company, and by which the balance of 880*l.* was received. The other directors—Col. D'Oyly and Mr. Gray, although qualified by themselves, drew no fees."

The reply to that was that they would not have drawn those fees if they had not known money would have been paid immediately quite sufficient to pay the bill; the bill was accepted after Mr. Hartmont had paid in sufficient to cover that bill; they knew that 880*l.* would be paid in time for them to accept the bill, and they did not accept the bill till the money had been paid, so that it was quite clear the directors were in no fix whatever. As to the fees, shareholders could not expect gentlemen would serve the company for nothing; they had great anxiety and trouble, and were likely to be hauled over the coals, and sometimes most unjustly. An arrangement was made with Mr. Hartmont for the payment of this 880*l.*, and under the advice of counsel. The committee then say—

"That Mr. Heynemann found it necessary to go to Eureka, and there endeavoured to effect a compromise. It, however, failed. On June 10, 1873, Mr. Heyneyman telegraphed, 'Must fight Jinksville; lawsuit may produce compromise. How much can I draw, if required? Mines looking better.' On June 14, 1873, the directors replied, 'Draw two thousand, if necessary.' At this time they had less than 200*l.* in the bank."

The directors considered it necessary to give a prompt answer, because they were in hopes this question would be settled. Perhaps the directors were rather hasty; his own opinion was that it was not quite safe to telegraph to draw until they knew the money was in the bank. They knew the arrangement had been made with Mr. Bernard to pay 6000*l.* into the bank, and that if Mr. Bernard did not pay it he would forfeit 100*l.* which he had paid on account. However, the arrangement was not carried out, and the directors were disappointed, upon which they were compelled to telegraph—"Company no funds—do not draw." Mr. Bernard said the arrangement was not carried out because the United States patents were not issued; but, as he (the Chairman) had already stated, they had been granted, although not actually issued. The committee say—

"It strikes us as unusual for auditors to make so long a report on the balance-sheet of a company, and in this instance we find their departure from the usual practice not without good reason. Why should shares forfeited at considerably under 50s. be valued at 100s.? The directors could not possibly have believed the latter to have been their then value, as the prospects had decreased instead of the reverse. Has this the appearance of a straightforward transaction?"

With all due deference, he did not think that was quite a fair thing to say. The directors only wished to do that which they thought best for the interests of the company, and had no interest in making that statement at all, and it was not made until after considerable discussion among themselves and with the auditors. The shares were forfeited at the lowest possible price—that was, for the interest of the company; and the directors thought they had consulted the interests of shareholders in doing so, and putting a fair value upon those shares. He was told the directors should have summoned a meeting but the directors did not see the propriety of asking the shareholders to put their hands into their pockets until they had tried to put matters straight. He considered it their duty not to ask for money from the shareholders until they had taken every means to carry this desire out, and the more so because at that time the mine did not look so well as they could wish. The position of affairs now was very different. It was clearly proved they had a very valuable property. He expected that Mr. Heynemann had been making as much as 12 per cent. on the total capital of the company by thus working their mines, and they would not have, he thought, much difficulty in recovering them. The directors had used every effort to induce Mr. Heynemann to come to terms, and to give up the property of the company. They proposed that a balance should be struck of what was due from the company to him, which should either be paid or received on the mines. The negociations were pending when the committee of investigation interfered in the matter, and when it was desirable that nothing should be made public. He appealed without any hesitation to the fairness and justice of the shareholders, who would see that the board had used their best abilities and discretion, and had worked very hard for their interest. No one regretted the present non-success more than the board. But he trusted the company would now begin a new era, and that the mines would be found fully equal to their most sanguine expectations, and by reducing the capital by the forfeiture of certain shares the company would be established upon a firm basis, and all he could say was that he would continue as hitherto to watch over their interests with every possible amount of activity and zeal.

Mr. BERNARD really pitied the Chairman, although he had very cleverly made out a defence which he was afraid would fall to the ground. He did not mean to charge the board with fraud, but he did mean to say they had proved themselves incapable to manage the company's affairs. He was the Mr. Bernard to whom the Chairman had referred, and with regard to what was known as the Bernard contract, he might mention that in May, 1873, it came to his knowledge that the directors were about to negociate with one of their colleagues for shares to the value of 6880*l.* for 600*l.* He (Mr. Bernard) immediately called upon the Chairman and warned him about it, but the Chairman said it was done. Now, he (Mr. Bernard) contended that the directors could not trade in the shares of their own company.

The CHAIRMAN: It was not trading in any sense of the word. The board had compromised a suit which had been brought against Mr. Hartmont, and the 600*l.* was to have been paid, under the advice of the solicitors of the company.

Mr. BERNARD then at some length entered into the conditions under which he entered into the contract, and said the directors had led them into all their troubles.

A SHAREHOLDER reminded Mr. Bernard that the Vice-Chancellor did not say so. He said that Mr. Bernard was wrong, and the directors were right.

Mr. BERNARD advocated the resignation of the board, and he promised to exercise every means in his power to fight Mr. Heynemann on this wrongful act. Mr. Heynemann sold these mines through his brother, and he (Mr. Bernard) was connected with the sale. The question was, had Mr. Heynemann taken back the mines in a *bona fide* manner? He (Mr. Bernard) did not believe he had; he believed he had been guilty of a breach of trust, which in America was not a criminal but a civil offence. There was no law in the whole world that would warrant such an act.

The CHAIRMAN reminded the meeting that Mr. Bernard had put the company to considerable expense by filing a Bill in Chancery, but the Bill was dismissed with costs, which had never yet been paid by Mr. Bernard.

Mr. BERNARD said he would act fairly to the company, as he had ever done.

The CHAIRMAN, in reply to a question, stated that there was no question as to the title of the Dunaburg property. The question was not as to title, but as to position, or whether they had a right to follow the lode beyond the limits of the property into the adjoining claim, it depended upon matters of facts, as well as upon law. These were the questions compromised under the suit.

Mr. LAW said he handed Mr. Bernard the 100*l.*, which was handed to the directors.

The CHAIRMAN, in reply to a question, stated that there was a vacancy in the board, which required to be filled up, and his brother consented to act merely to comply with the requirements of the law, and never received one penny from the company for his services.

After some further discussion, the report of the committee was received and adopted.

Mr. BERNARD then proposed that the directors be requested to resign, with the exception of Messrs. D'Oyly and Gray.——Mr. OPPERT seconded the proposition, which was put and carried.

It was also agreed to pass to the committee a vote of thanks, and to award them 25*l.* each, to be paid out of the first moneys that came to hand.

Some further discussion ensued, during which it was proposed to adjourn the meeting, but the CHAIRMAN promised to convene a special meeting, of which due notice would be given. The proceedings then terminated.

LONDON AND CALIFORNIA MINING COMPANY.

The sixth ordinary general meeting of shareholders was held on Thursday, at the City Terminus Hotel, Cannon-street,

Mr. LEWIS R. PRICE in the chair.

Mr. JOHN SAUL (the secretary) read the notice calling the meeting. The report of the directors was taken as read.

The CHAIRMAN said the directors had met the shareholders so recently that there was very little change, he was sorry to say, that had taken place to communicate. The principal object of this meeting, therefore, was that of routine as an ordinary general meeting for receiving the report of the directors and the audited accounts. They were very simple, but he was sorry to say at the same time, very unsatisfactory. The slight improvement that had taken place in the Amador—the others being closed—did not hold out any very great hopes of permanency; they could not say what it might be productive of, there was good ore in it, and it might possibly turn out to be a valuable discovery; but they could not be too careful in building up hopes upon it, for the whole course of this unfortunate company had been one of disappointment to the board. It was unnecessary to point out to the shareholders that if they were affected by their losses, as they must necessarily be, what was the directors' position, where their losses were so much greater, and where all the anxiety and the burthen of the business had fallen upon them. He believed he could state, not only for himself but also for his co-directors, that they would willingly have lost their own money could they in any way have got rid of the pain and regret they felt at the fact that others had lost money in an enterprise with which they had been connected as members of its board of directors. (Hear, hear). At the same time, however, they could take no fault to themselves for the misfortunes that had befallen the company. That morning they had received a telegram from the mine which, though of scarcely any importance, he would read to the meeting. It was as follows:—"Eighth level, south of main shaft vein, looks well, but carries no pay." That was very unsatisfactory. It had not paid before, therefore he did not know how it could look well. There was a formal vein there, and the walls were good, thus indicating that they were in ore ground, but, as stated, it did not pay to work it. The telegram further stated:—"In Prospect shaft ledge the ore is not so good, but carries rich streak." This message was received August 6, that was that morning. The directors had been in correspondence with Messrs. Cross and Co. with reference to their relinquishing their claim as to any charge for agency, and they had consented to it; and the last month included in the accounts—March—was not charged for, and that charge would disappear in future. That represented a saving of about $500 a month, and would enable the company to eke out the funds in the future to a greater extent than would otherwise have been the case.

A SHAREHOLDER: Did they not do it from the beginning?——The CHAIRMAN: They did not.

The SHAREHOLDER: They should have done so. Do they now do so without reserve?——The CHAIRMAN: No; they give it up until such time as the mine becomes a paying concern. He (the Chairman) then went on to say that the expenses on the Amador Mine had averaged about 800*l.* a month for the six months represented in the accounts. That had been somewhat reduced by 1000*l.* of bullion, but in looking forward to the work of the future of course they must estimate the full cost of the working, because it would be useless to attempt to calculate what might be derived from the mine in the future, therefore they must estimate 800*l.* as the cost of working the property, but it was possible that that sum might be reduced to 700*l.*, because there were no other works than those two going on—the shafts and the driving. The shareholders had, doubtless, read the report of the agents, and seen what small hopes there were. By means of the surface prospecting they had reached the present vein, where the shaft, called Prospect shaft, was displaying same amount of ore. Now, as far as they could judge, the ore had a tendency towards Bunker's Hill Mine, which was now producing some very good ore, and it was just possible that they might get into the same ore as that of Bunker's Hill Mine. That was their only hope; he was afraid it was a very feeble one. The foregoing remarks comprised all he could say with regard to the condition and prospects of the mine; he, therefore, begged now to conclude by moving "That the report of the directors, together with the accounts, be received and adopted."——Mr. WARDROP seconded the resolution.

The CHAIRMAN, in replying to questions addressed to him by Mr. Bergtheil and other shareholders, said that some ore had been discovered on ground adjoining the company's mine, and Messrs. Cross and Co., hearing of this, had invited the directors to purchase this small adjoining claim, and carry on the works into it through their mine. But circumstances had induced them to believe that it was a very small and insignificant thing, and would result in no good. On their declining to take it up some people in San Francisco had gone into the venture, and had proposed to lease it to this company's works for the sake of exploring this small vein. The board had agreed to this proposal. The result of their working had shown that the directors had been quite right in not undertaking it. The parties who were working it were paying the company $100 a month, and that contract had been made for two years. They had already paid $300 for the first three months' working. With regard to the amount of unpaid calls standing in arrear, amounting to 3000*l.*, the directors were doing their best to make a satisfactory settlement of the matter, but it was one of some difficulty, owing to its complicated nature.

Mr. SURGEY, in answer to a shareholder's enquiry, said probably it would not be convenient for the committee of investigation to make their report before the end of October.

The CHAIRMAN, in reply to further questions, said that the company had still in hand 4000*l.* of the loan; that would carry them on for five months at least, even at 800*l.* a month, and they had given instructions to reduce the expenses in every way, except as regarded outlay in driving the drifts and sinking the shafts. (Hear, hear.)——The resolution was then put and carried unanimously.

On the motion of the CHAIRMAN, seconded by Mr. BERGTHEIL, the retiring directors (Messrs. Howie and Neall) were re-elected to seats at the board.

The CHAIRMAN, declaring the business of the meeting at an end, said no time would be lost in calling the shareholders together again the moment the committee had prepared and drawn up their report; in fact, the committee's time would be their time.

Mr. BERGTHEIL proposed a vote of thanks to the Chairman and directors, which, being put to the meeting, was cordially awarded, and the proceedings terminated.

BLINMAN CONSOLIDATED COPPER MINING COMPANY OF SOUTH AUSTRALIA.

The adjourned general meeting of shareholders was held at the company's offices, Cannon-street, on Thursday,

Mr. H. HILLS in the chair.

The CHAIRMAN stated that since last week they had received by the mail communications from Mr. Paul and from Mr. Botting, from which it appeared that affairs at the mine were exactly in *statu quo*, no sale had been effected by the sheriffs, who were in possession of the property. With regard to the Port Augusta property, the sheriff had had the traction-engine, &c., sent to Adelaide for sale, but nothing had yet been sold. In accordance with the wish expressed at the last meeting, Mr. Hall, the accountant, had made out a full statement of accounts, which showed that there was a balance of liabilities over assets of 925*l.* 4s. 11d.; there was also the 2000*l.* on the Port Augusta property, for which the sheriffs had just seized, and unless they determined to wind-up both the 900*l.* odd and the mortgage would have to be provided for. The shareholders had several times been applied to, but as no response was obtained the directors concluded that the shareholders were exhausted, and further application appearing useless they saw no course but to wind up, though they would be glad to receive suggestions from any of the shareholders.

Mr. BINGLEY remarked that only 25 answers were received to 700 circulars sent out.

Mr. BARNABY enquired whether the preference capital was still intact in the hands of the bankers in the three names mentioned as trustees?

The CHAIRMAN: Certainly not.

Mr. BARNABY: The directors had said that if 7000*l.* or 8000*l.* were not subscribed all the money would be returned in full, and he was sure that if it had been known that this money was to be played with as before no one would have subscribed. If the directors were of opinion that Mr. Martin's services in going to the colony should be valued at the 2000*l.* which he would otherwise have subscribed he thought the directors should make up the amount among them.

The CHAIRMAN said that the money was subscribed upon condition that a sum sufficient, in the discretion of the directors, to go on with should be subscribed before the money was touched, and that condition was complied with.

Mr. BINGLEY, in reply to a remark of Mr. Barnaby, denied that he had ever stated that unless the 8000*l.* were subscribed the money would be returned. He had himself taken 170*l.* worth of the preference shares, and had worked as hard as he could in the interest of the shareholders. The money was to be placed in the hands of three gentlemen, and was not to be transferred to the company until the new directors authorised the transfer. At that time everything looked very promising, and they appeared to have sufficient to go on with safety. There had been 4440*l.* subscribed, and there were some further conditional subscriptions. Of that amount 3012*l.* had to be paid to the bank, and if it had not been paid at the moment the entire concern would have been stopped; 126*l.* went for rent, secretary's salary, &c., and there were sundry other small payments, which left the present balance of 4*l.* 8s. 5d. As to the alleged want of courtesy in not replying to Mr. Barnaby's letter, he accepted the responsibility, and would only say that if Mr. Barnaby had been there he would have found it impossible to reply to the almost innumerable letters of the same nature. He might say, moreover, that he had himself written many courteous letters to the largest debenture holders and shareholders, and had received no reply whatever. The only thing that had broken them now was the bank calling in the Port Augusta mortgage, and it must be remembered that all was in good condition until the end of last year. The debenture holders had rendered them no assistance whatever, although they might have done so without actually subscribing money—they might have helped them by expressing their willingness to postpone calling in their principal upon the payment of the interest being continued, but they had done nothing. It was all well now that things had failed for the shareholders to complain, but if the reverse had been the case the directors would have been lauded to the skies for acting as they had done.

Mr. ATTRILL had no doubt whatever that the new directors had endeavoured to do their best, but he believed that they were morally responsible for parting with the money as they had done. He knew that before Mr. Martin went out notice had been given by the bank that they required their money, but he felt that as soon as Mr. Martin got out there the strings had been pulled unmercifully against the company, and the reason of this. They were told they could go on no longer, and must wind-up; yet he understood Mr. Martin had given his guarantee to the bank, and, therefore, supposed that the guarantee was now insufficient.

Mr. MARTIN said that the bank was perfectly satisfied with the guarantee, but were determined to close the account. He read the guarantee, which was to the effect that in consideration of the plaintiff suspending execution for one month, to give him time to communicate with England, he would make good any deficiency upon realisation under the *fi fa*, and pay expenses. He had previously paid in 1000*l.* to the credit of the company, and they held his guarantee for 1200*l.* He at once telegraphed to the directors, and on April 13 received notice from the bank that the month had nearly expired; and, as he had no satisfactory answer from England, they might find it necessary to send up the sheriff by the mail then about leaving. He (Mr. Martin) communicated with Mr. Paul, got him to come down from the mine, and on the 17th sold him all the copper then made at the mine at 65*l.* per ton to secure payment of the men's wages, and made further sale of future production to pay the men and keep the mine going. If he had studied himself instead of the shareholders he would not have done this, but would have let the bank seize and sell, as he would thereby have been released from his guarantee. He did his best for the shareholders, and up to to this time had induced the bank to hold possession and not sell. Everything, in fact, remained as when he left the property, and if the shareholders would come forward even now the concern could go on. He would do his share, and more than his share, but he would not subscribe the whole of the money required for carrying on the mines. The difficulty was, that if 5000*l.* were provided it would still be necessary to find funds for payment of the interest on the debentures.

It was ultimately resolved to wind-up the company, Mr. Bingley accepting the office of liquidator without remuneration, and Mr. R. Lock being appointed the other liquidator, with 52*l.* 10s. for his services. The meeting then separated.

THE CONGLOG SLATE AND SLAB COMPANY.

The second general meeting of shareholders was held at the office of the company, Plymouth, on July 28. From the report, and from the statement of the Chairman (Dr. GILLOW), it appears that the company, although young, is in a satisfactory position. The drivings, so far as they have been carried, prove the property to be most valuable, and the only thing that now remains to be done to cause the company to pay dividends is to develope the quarries. That there is an abundance of slate rock, and that of the best quality, there cannot be a doubt, and it is believed that by the time the next meeting is held the machinery will be erected and a profit shown on the working. The Chairman and directors, who are all men of position and standing, have visited the property, and they feel convinced their prospects are of the brightest description.

In opening the meeting the Chairman read the report of the directors, in which they stated that they hoped to be able at the next general meeting (in March) to report the completion of all the necessary machinery for slate and slab making. They also stated that having visited the quarry they were able to congratulate their co-shareholders on the possession of a valuable property, which they believe will in a short time realise their expectations. Dr. Gillow explained that the report of necessity was of a meagre character, because of the short time the company had been in operation. He also explained that the accounts were made up to December, in accordance with the Articles of Association; but a supplementary sheet bringing them up to the present time had been drawn up for the inspection of the shareholders, and in future—or, at all events, whilst he was Chairman—he should advise the meeting be held early in the year, and that thus they might always know their true position.

Mr. BETTELEY (the secretary) read the report of the manager, Mr. Edwards.

Dr. GILLOW then explained that he had recently visited the quarry. There was no doubt but that they had in their property the elements of a great success. He had satisfied himself of that. First of all, the quarry was situated in one of the few favoured spots which always ensured success. They, situated as they were in the midst of a mining community, knew that the value of a set depended greatly

on its situation. There were some spots in Cornwall in which they all knew a certain mining sett carried with it a value simply because of its locality, whilst another sett, although copper or tin might be found, would not be worth near as much, because of its position. It was just the same with slate. There were three localities in Wales which had always ensured success to the adventurers, and if they had one of these they could always get good slate, and command a good price for it. Their quarry, he was happy to say, was situated in one of the best localities, and, furthermore, it could be worked most economically and with comparatively slight expense. In their quarry they had the satisfaction of knowing that immediately they commenced driving they had come on slate rock. They had three tunnels—or, as miners would say, adits—driven into the side of a hill, and within a yard paying slate was found. One had been driven a considerable distance through solid rock of a remunerative and valuable quality. One good thing was that very little of their capital had been spent in unremunerative labour. There was another element of success, and that was that they could get their goods into the market very cheaply. Another company had a tramway constructed within a mile of their own quarry (which they would be in a position to use), and the amount required to continue it to their property would be about 800*l.*, or at the utmost, with all its appliances, 1000*l.*, and for the outlay they got an easy access to the market. The tram was connected with a public railway, which ran directly to a port from which all their shipments could be made. Another element of success was that they had an ample supply of water for all purposes, but not such a supply as they were accustomed to in Devonshire, where frequently they found themselves without sufficient water to drive their machinery. They fortunately had a lake directly on the top of the hill where their quarries were situate, and which would at all seasons give an abundant supply for any machinery they might erect. Here, then, were three great elements of success—a good locality, the affair would be worked most economically, and they had good water-power. They generally saw that limited liability companies were ruined by reckless management and expenditure, but he firmly believed that in their directors and manager they had most economical and efficient men. Mr. Edwards was a thorough Welshman, and a "quarryman" from birth. He was not only the latter, but also an engineer, and he did this work as well as acting as manager, thus saving the company the expense of another official. His salary was comparatively small, but he was doing what he did with the idea of working the quarry for the benefit of the shareholders, and he no doubt would expect that after they had begun to reap a benefit they would deal well with him. He lived on the spot, and, although his immediate presence was not always required, yet he was never absent from the quarries. The directors had hitherto worked without remuneration, and they would continue to do so until they had commenced to pay dividends, and saw that they should continue to do so. He would mention that in their visit to the quarries the expenses had been kept down to the lowest possible farthing. From what he had said they must not think that he meant they were going to make their fortunes at once. He wanted the quarry to be worked in such a manner as to make it a safe investment, and also that when properly got to work it might make a profit for years to come. He expected they should get their machinery on the quarry by the end of the year, and they would then have ample ground open to make slate; and by this time next year he believed they would be in a position to send slate to the market, but he did not lead them to expect that they would have a large dividend declared, because they had the future to look to as well as the present. (Hear, hear.)

The CHAIRMAN, in answer to a Shareholder, said theirs was as good a quality of slate as had been or could be found in Wales. There were two kinds of slate—one the fine grain, and the other the rough grain. The stone in their quarry was of the latter description, which was really liked the best and most sought after. They would admit that in mining there was one thing most unintelligible, and that was the value of minerals. There was a constant fluctuation with regard to them, and from this cause they could never be sure whether a mine would be worked at a profit or not. That was not the case with slate, for the demand for that article was far beyond the supply, therefore they had a guarantee that the price would keep up to its present standard. Besides this, the managers, he knew, had stated that they intended to put up the price 15 or 20 per cent., because of the demand exceeding the supply. The difference in the price of slate must, therefore, be in their favour, and they would always be in a position to command a ready sale for their produce. (Hear, hear.)

Mr. John Farran Penrose was re-elected a director, and Mr. Prout elected in the place of Mr. Braginton, the other retiring director, who resigned. Mr. Horswill was re-elected auditor.——Mr. CRIPER proposed a vote of thanks to Dr. Gillow, the Chairman, for his lucid and satisfactory statement with regard to the quarries. He had never attended a meeting where the proceedings were characterised with more uprightness or in a more straighforward manner, and he believed they owed much of this to the Chairman.——Mr. PENROSE seconded this. He had never heard a more exhaustive report than that of the Chairman, and he was sure that he must have taken a vast deal of trouble in order to be in a position to bring the matter before them in the manner he had done.——The vote of thanks was unanimously accorded, and Dr. GILLOW, in reply, said he felt thoroughly justified in advising persons to take shares after what he had seen. If any of them chose to visit the property they were at liberty to do so, but he would tell them that their manager was not a man to gild things. He would put the property before them just as it was, or even worse than better, so that they should not be unduly led away.

TINCROFT MINING COMPANY.

The three-monthly meeting of the adventurers in this mine was held on Wednesday—Captain TEAGUE in the chair. The statement of accounts showed that the expenditure on labour had been—for January, 1357*l.* 19s. 9d.; February, 1343*l.* 3s. 11d.; and March, 1202*l.* 18s. 8d. The merchants' bills were 2494*l.* 12s. 9d., and the other items of expenditure included 285*l.* 15s. 3d. for carriage; 350*l.* 16s. for dues; 10*l.* 14s. 10d. for Vice-Warden's assessment; 41*l.* 12s. 6d. for income tax; and 191*l.* 19s. 7d. for Illogan parish rates—making a total of 7656*l.* 13s. 3d. The receipts were 9283*l.* 1s. 5d. for the sale of 170 tons of tin; 30*l.* 1s. 2d. for extra carriage; and 34*l.* 3s. 9d. for old materials: total, 9347*l.* 6s. 7d.—showing a profit of 1690*l.* 13s. 1d., which, added to a balance from the last account, left an available balance of 1794*l.* 0s. 5d. With this sum it was resolved to declare a dividend of 5s. per share.

The agent's report was as follows:—Highburrow Lode: In the 234 driving west of engine-shaft the lode has improved in appearance, and is worth for tin 10*l.* per fathom, and in the same level driving east of the engine-shaft the lode is worth for tin 12*l.* per fathom. In the 210 driving east of shaft the lode is worth for tin 15*l.* per fathom, and in the 195 driving east of Martin's east shaft the lode is worth 8*l.* per fathom.—Chapple's Lode: In Downright shaft sinking under the 234 the lode is worth 60*l.* per fathom, and in the 234 driving east of Downright shaft the lode is worth 20*l.* per fathom. The winzes under this level continue to be worth 100*l.* per fathom. In the 222 driving east of Downright shaft the lode is worth 30*l.* per fm.—Dunkin's Lode: In the man engine-shaft sinking under the 150 the lode is worth 30*l.* per fathom. In the 140 driving west of shaft the lode is worth 7*l.* per fathom. In the 160 driving west of man engine-shaft the lode is worth 25*l.* per fathom. The mine is looking well throughout, and with an improved price for tin we should resume our former dividends.

The reports and accounts having been adopted, the CHAIRMAN said it might be asked why it was that with the new stamps at work more tin had not been returned. He could only say that they had done their best, and he had no doubt that they should very shortly increase their return, although with tin at its present price it would be a very great pity to do so. Possibly some of them were not exactly acquainted with the value of the lode in the man engine-shaft, and he would, therefore, explain that they had never before valued it to the amount that was now put upon it. The ground in that lode was standing almost entire from the 120, but the improvement did not appear to take place until they got down to about the 150, where it was certainly very decided. There was a good lode which was all new, having nothing whatever to do with the other parts of the mine from which they had hitherto been making their returns. That shaft would shortly be hoisted to the 160, where they had driven through something like 30 fms. of ground, and the lode on an average was worth about 30*l.* per fathom for the whole of the driving. But up to this time nothing had been done upon the lode beyond a stope in the 140, but perhaps in another month they should well nigh hole the ground.

A vote of thanks having been given to Capt. Teague for the manner in which he has watched over the interests of the adventurers, the meeting closed.

CARN BREA MINING COMPANY.

The three-monthly meeting of the adventurers in this mine was held, on Wednesday, immediately after that of Tincroft, Captain TEAGUE in the chair. The accounts were as follows:—Labour cost for January, 1820*l.* 10s. 1d.; for February, 1786*l.* 15s. 11d.; and for March, 1742*l.* 4s. 9d.; merchants' bills, 4118*l.* 17s. 10d.; carriage, &c., 381*l.* 1s. 2d.; dues, 460*l.* 14s. 2d.; Vice-Warden's assessment, 11*l.* 6s. 2d.; doctor's pence, 31*l.* 12s. 1d.; income tax, 102*l.* 2s. 3d.; parish rates, 148*l.* 16s. 1d.; balance in respect of London books, 42*l.* 4s. 10d.: total, 10,646*l.* 6s. 4d. The receipts were—1264*l.* 16s. for copper, 9556*l.* 3s. 6d. for 168 tons of tin, 50*l.* for arsenic, 20*l.* 15s. 15s. 7d. for extra carriage, and 13*l.* 16s. 6d. for old materials: total, 10,905*l.* 11s. 7d. Showing a profit on the three months' working of 259*l.* 5s. 3d., and making a balance in favour of the mine of 4868*l.* 11s. 9d., which it was decided to carry forward to the credit of the mine.

The agent's report was then read, as follows:—"Highburrow Lode: In the 238 driving west of cross-course winze the lode is worth 12*l.* per fathom, and in the same level driving east of the cross-course winze the lode is worth 30*l.* per fathom. In the 226 driving east of winze the lode is worth 12*l.* per fathom. In the same level driving west of cross-course winze the lode is worth 10*l.* per fathom. In the winze sinking under this level the lode continues rich, and is worth fully 100*l.* per fathom. In Highburrow west shaft sinking under the 213 the lode is large, and worth 20*l.* per fathom, and in the 213 driving west of shaft the lode is worth 20*l.* per fathom. In the 187 driving west of shaft the lode is worth 15*l.* per fathom.—Teague's Lode: In the 208 driving west of engine-shaft the lode is worth 12*l.* per fathom. In the 195 driving west of engine-shaft the lode is worth 20*l.* per fathom. In the 135 driving east of engine-shaft the lode is worth 10*l.* per fathom. In the 125 fathom level driving east of shaft the lode is worth 12*l.* per fathom, and in the 156 fathom level driving east of the shaft the lode is worth 12*l.* per fathom. Druid Lode: In the 204, driving west of new shaft, the lode is worth 20*l.* per fm.; and in the same level, driving east of shaft, the lode is worth 20*l.* per fathom. In the 192, driving east of shaft, the lode is worth 15*l.* per fathom. In the 160, driving east of Monument shaft, the lode is worth 10*l.* per fathom. In the 150, driving in the same direction, the lode is worth 7*l.* per fathom; and in the 140, same driving, the lode is worth 5*l.* per fathom.—Druid South Lode: The 125 fm. level is without alteration since our last report. We have found nothing worthy of remark in either of the cross-cuts south, but shall continue to drive the same until we reach the south lode, from which we expect good returns when met with. The mine continues to open up quite to our expectations.

The CHAIRMAN stated that at the Druid lode, where they had sunk at the 204, there was a very good looking lode, and one from which he believed they would hereafter derive great benefit. The adventurers had, no doubt, noticed that even in these depressed times they had not stinted their tutwork operations, and he doubted whether there was a mine in the county at the present moment giving employment to so many tutwork men. But whether this should be continued was, of course, a question which the shareholders should decide. His own opinion was that the agents were perfectly justified in doing what they had done, and that it should not be discontinued. The old party had driven the ground up to certain points, and the present agents had been obliged to open up new ground, and unless they kept up tutwork it was evident they could not open up ground that would pay for working when the proper time arrived for taking it away. Their expenses were very great, it was true, but he was buoyed up with the hope that they would soon surmount the whole of their difficulties, and come out of them as well as they could wish. He should have been extremely pleased if they could have declared a dividend that day, for in a mine like Carn Brea there was not much satisfaction in carrying forward a small credit balance, but he hoped there would very soon be an improvement in the tin standard. As a rule he was very cautious in his predictions, but seeing that there was a very considerable improvement in the prospects of the mine he did not hesitate to say that if tin only increased in price they should speedily resume their former dividends. He believed that he owned a quarter part of the concern, and to show that he had some faith in it he would state that he had considerably increased his interest during the past quarter. (Hear, hear.)

Mr. HARRIS considered that Capt. Teague was fully justified in continuing the tutwork, notwithstanding that the expenses were so great. Dividends, perhaps, might have been declared if the tutwork had not been persevered in, but they could not have been permanent, and the mine would, consequently, have suffered.

The CHAIRMAN said that was so. Three months ago the tutwork was curtailed to a certain extent, but he had thought it better to keep it on. The future of Carn Brea was as promising as any mine he knew of, and, for him, that was saying a great deal. (Applause.)

Mr. RULE remarked that a great deal was said out of doors respecting the management of Carn Brea, and it was complained that the accounts were not brought properly up; but, as a merchant who supplied the mine with materials, he wished to state that he knew of no mine in the county which paid its accounts more promptly or satisfactorily than Carn Brea—(hear, hear)—and he assumed that all the other merchants were dealt with in the same way.

Capt. TEAGUE replied that all the merchants were treated alike, and it was a course which he hoped he should always pursue.

Mr. RULE said he mentioned the fact because he knew that all sorts of unpleasant rumours were circulated calculated to affect the stability of the mine, and he thought it only just that the actual facts should be known. It was right that the public should know these things.——This concluded the business of the meeting.—*Western Daily Mercury.*

[For remainder of Meetings see to-day's Journal.]

FOREIGN MINES.

RICHMOND.—Cablegram from the mine at Eureka, Nevada:—"Hall, London—Week's run, $40,000. Two furnaces, No. 1 re-lining.—PROBERT."

EBERHARDT AND AURORA.—A telegram from Capt. Drake announces that the mill crushed 816 tons in July, producing 9700*l.* Mine looking well, the average assay being $88 per ton.

FRONTINO AND BOLIVIA.—During the 'month ended May 20 the produce amounted to 2144*l.*; and the cost, including 824*l.* paid for gold dust purchased, to 1648*l.*, leaving a profit of 495*l.*

DON PEDRO.—July 2: Produce: Weighed to July 2, 2700 oits.; estimate for June, 4800 oits. Operations throughout the mine have progressed favourably during the past month, and the ore returned has again been derived from the Canoa and No. 6 and No. 8 shoots. Box-work has been limited, and only of moderate quality. We have met with some minor hindrances in sinking, but progress, on the whole, has been moderate, and every effort is being made to get the incline sufficiently deep to commence another cross-cut in August. Since the balance-bobs have been attached to Dawson's wheel the machinery has worked beautifully. The water being drawn from the mine amounts to 18·84 cubic feet per minute.—Stopes, Canoa: A small amount of fair box-work has been taken from here. The lode is much the same as formerly reported.—No. 6 Shoot: Some very rich samples have been taken from the stope below the 25, but none continues sufficiently rich for box-work; the lode, however, produces very fair general ore.—No. 8 Shoot: Stoping this has been continued as usual. A little box-work is again being taken from the stopes towards the bottom of the mine.

ROSSA GRANDE.—Extract from letter dated June 28: Bahu: I have nothing of importance to report since my last. Sinking and driving have for some time been suspended, consequently we cannot look forward to any discoveries on the present system of working. We have but a small force stoping, and the ore being sent to stamps is extracted from the bottom of the 38 east and west of sump, and a small quantity from the bottom of the 18 west; at the latter point I expect soon to see an improvement, as we are getting close to the dip of the rich bunch found in the bottom of the 10 west. The average of the mineral being crushed is of low yield, although occasionally exceedingly rich stones are met with, which so far have proved only a source of disappointment.—Third Formation: We are breaking a few tons daily on this lode, and every foot in depth shows an improvement in its nature and yield.

INDEPENDENCE GOLD QUARTZ.—The directors have received details of the June clean-up: 943 tons of quartz were crushed, which yielded $6 28 per ton, exclusive of sulphurets and tailings which remain on hand. The cost of mining and milling was $4·24 per ton. A further improvement in the yield is looked for in the result of the July crushing, as the superintendent, writing on the 11th ult., says "The mill is doing better than at any former time," and that "the ore in the face of drift at present being fully equal to, if not better than, any we have worked as yet." Preparations were being made to sink the shaft for a deeper level, and also to open a new level on the east shoot.

BLUE TENT.—Col. C. W. Tozer, July 12: We have on hand the clean-up heretofore reported of short run at South Yuba, about $2000, together with some amalgam taken from time to time as we are required to do in repairing undercurrents from the run now being made in Enterprise. The expenses of retorting and melting small lots is as large as greater ones, hence when money is not needed we keep on hand the amalgam until clean-up is finished, and retort and melt all at once. Shall commence cleaning up Enterprise Tuesday, 14th inst., and hope to able to announce satisfactory result obout the close of the week. We take several days to make the clean-up, meantime washing in those places not being cleaned and repaired. The South Yuba claim is now in good shape to run to end of season, and unless circumstances require it shall not clean up South Yuba until the end of this month. We have well nigh overcome the difficulties encountered here, and shall, I think, if water holds out two months longer, be able to give a pretty fair account of this claim. We have had a hard struggle with it to get in as good condition as we now are, and do our best to verify predictions. The gravel improves in quality rapidly as we wash further in towards the channel, and is rapidly becoming more easily washed, and more cheaply handled. We have since been turning in water at South Yuba wash back towards the channel about 60 ft., and have widened out the face of the pit from 200 ft. to about 350 ft., and this has been a far more tedious and expensive task than I ever anticipated or than could have been foreseen. Has cost large sums for labour, powder, water, &c. I came down from camp at head of ditch yesterday (Saturday evening), and shall return to-day (Sunday), being ready for business there Monday morning. I thus have but brief time to write and dispatch the accounts, &c.

COLORADO TERRIBLE.—Extracts from the agent's letter, dated July 15: The 42nd shipment is composed of 12,083 lbs. first-class, assay 566 ozs. of silver and 28¼ per cent. lead; 8164 lbs. B mineral, assay 218½ silver and 16½ per cent. lead: total 20,247 lbs. The concentrator is working steady on the third class dump. Some of the mineral produced will assay over 500 ozs. of silver per ton.—Ore Deliveries to Stewart: 8 tons second-class; 3 tons 1714 lbs. second-class, pickings; 2 tons 793 lbs. F mineral; total, 14 tons 507 lbs.—Cash received: Promissory note paid, $2096·43.

SWEETLAND CREEK (Gold).—G. D. McLean, July 5: Washed through both tunnels, tunnel now working.—July 6: Repaired shaft, moved Giant on Red Hill near the bank; fired two small blasts on the channel, one of 8 and the other of 12 keg powder.—July 7: Washed through both tunnels or channel and side. 50 Chinamen breaking lumps, picking, and wheeling, driving cuts, and stripping and cleaning bed-rock. The creek glides along without further trouble. Tunnel men constantly at the face, the whole being constantly on the move.—July 8: Washed same as on yesterday; work unchanged, all moving.—July 9: Washing same, no change to note.—July 10: Washing on channel and side, using 1500 in. of water. Tunnel cuts, breaking lumps, and cleaning bed-rock, all progressing as usual.—July 11: Wash through both tunnels; other work unchanged. Rock in new tunnel something better, and progress improved. New tunnel in 488 feet beyond the shaft.

BIRDSEYE CREEK (Gold).—G. S. Powers, July 11: The tunnel is now in to this date 262 ft.; shaft, 107 ft. The shaft was slow, on account of having so much water to contend with, but I am doing the very best I can with it. In my letter of May 25 I stated that we were ready to explode a blast in Neece and West, on the east side of the channel, in solid bank, but we were mistaken as to solid ground, as a portion of the blast went through into drifted ground. We have a blast now ready to explode on the same side that I am sure is in solid bank, and I hope to make better returns from this mine this month than last. There still remains in the centre of the channel a piece of drifted ground, about 80 ft. by 100 ft., which will take the greater portion of this season to work up, after which I can see no reason why the company may not expect steady and profitable returns. I shall have the new ditch completed by the 20th inst., then we shall be able to hold all the water rights in the reservoirs, and wash daytimes only. I shall continue to make the improvement mentioned in my letter of a recent date, as the cost will be less now than later in the season, when the days become short and the weather changeable. I am looking for mint returns to-day for month of June, when I shall send you statement of accounts for that month.

HOLCOMBE VALLEY (Gold).—J. Haley, July 10: I last wrote you on June 30, and since 'am in receipt of yours of June 5. In my letters of June 30 to you I told you I closed down the mill and mine in order to stop the expenses, as I saw no means of meeting the payments, and concluded it was the best thing to be done until Mr. Courtenay's arrival. You have without doubt a first-class property, and I have no fears but what Mr. Courtenay will corroborate every word I say. I have no doubt but what you will feel annoyed at me for not going on with the mill: I should have done so were I in a position, or empowered to negociate for a loan at reasonable rates. I would not go on and contract debts and be at the mercy of those I have to deal with. I presume I shall hear from Mr. Courtenay when to be in Los Angelos to meet him.

NORTH AMERICAN (Gold).—Mr. B. W. C. Morgan, July 10: During the current week I have again undertaken to extract gravel from two points on the low rock: seven men have been thus employed. No systematic drifting could be done until yesterday, the accumulated water having had to be removed by hand. The gravel taken out has not been separated, but thrown into the yard, together with that coming from the old ground, where 20 Chinese are drifting. Yesterday 163 loads in all, only 30 of which came from the new ground, were washed on the platform; from these 17 ozs. of gold were obtained, valued at $306, or nearly $1·87 per load. The gravel from old ground we know from extensive washings this year does not average $1 per load, hence that from the new ground must have been unusually rich. In the dust were two pieces, smooth washed, weighing respectively 5¼ ozs. to 2 ozs. The cost of labour alone for mining this gravel was $106. It can be plainly seen that could we mine this new ground dry with a full force a good showing would result. We have prospected over this ground, and although the tests do not run uniform they have been generally good, and in some instances rich. When thoroughly dry 4½ to 5 loads to each Chinese drifter would be about the daily average work. I do not expect to be able to take out much of this ground at the points mentioned at present, but have been desirous of having as thorough tests as possible.

The next set of main drifts, north and south, cut the channel transversely, and will break the water current, when the low ground will soon become perfectly dry. What I term the old ground—that opened last year—was at the time of first opening quite as wet as the new ground, but it has been long since so dry as to be fairly dusty in the breasts. I presume in two months after the drifts are run across this low ground it will be sufficiently dry, so that it can be all taken out with Chinese labour. I am impatient to start up the main tunnel and other drifts, as it is on the distance they can be got ahead that the results of another season depend. I think I shall not delay much longer starting them, and trust that some means may be provided for meeting their cost after water fails. In my last, of the 4th inst., I anticipated that the bullion product of the mine would fall short of meeting the whole expenses for the season in some $3000. This may not prove the case, as, so far as can be seen, the water season will be prolonged at least four weeks longer than last year. No exertions will be spared to get out all the bullion possible. An inspection just made of the sub drift No. 3 south, in new ground, seems to show the water subsiding more rapidly than at any other point: the fact is quite plain today. Should this continue there may be a chance of carrying one breast there, which would help very materially. In looking at the result of operations here since last season, the fact must not be lost sight of that more 2300 ft. of tunnel and drift have been constructed, most of which is in the low ground, and unavailable for any purpose of profit this season. An equal amount more of the same work would afford ground opened sufficient for two years work of extraction.

I am sure if the directors and shareholders could thoroughly understand the situation and the out-look, there would be no great amount of dissatisfaction. With reference to labour the mine is in a better position than ever before, being no longer dependent on the uncertain and untractable white class. That Chinese are much more profitable than the other class for general work there is no doubt, but the difficulty of working them in large numbers in this State can be better explained to you by Mr. Simson than written here. With dry ground to mine, we can, when worked up to the full capacity of our tunnel, take out gravel at a cost of not more than $0·50 per load for labour. If it is desired, and I am fully authorised, I might find on this side a part, if not all, of the funds that may be needed after water fails, the rate of interest would not be under 1½ per cent. per month. Circumstances may oblige me to retire from the management here very soon, but if it is the wish of the board that I should do so, the sooner it is expressed the better it will be for all parties.

MENZENBERG.—R. K. Roskilly, Aug. 5: Dickins's Engine-Shaft: We have again set this shaft to sink, to nine men, at 100 thalers per lachter. The ground here has very promising appearance, and we are pushing on the sinking of the same with all possible dispatch, so as to reach the 45 fm. level, at which point to cross-cut south to intersect the lode sunk through in the shaft at the 34, the intersection of which we look forward to with encouraging results. The shaft is now down 42 fms. below surface.

BENSBERG.—C. Craze, Aug. 3: Victoria Shaft: In the month of July the sumpmen have driven a level about 7 ft. west of this shaft, where the part of the lode carried will produce 2½ tons of ore per fathom; they have also secured the shaft with timber, and sunk about 2 ft. in the shaft. The lode here continues to yield ore for dressing, but I think we have passed through the best part of it; this will be known by sinking a little deeper in the present direction, when, if we find this to be so, we shall break the underlie, and sink on the best part.—New Shaft: The level west of this shaft has been driven 3 fms.; the lode here is still holding good, and will produce 6 tons of ore per fathom, and I have rarely seen a more promising lode for producing large quantities of ore in depth. The level east of this shaft has been driven 3 fms. in the last month; the lode here contains great quantities of pyrites, with fine stones of lead in the bottom, where it presents a better appearance. The level in the south-east end of open-cast has been driven 2 fms.; the lode here produces a little lead, but not enough to value; this level has passed through some orey ground, and we hope as we get a little further east it will again improve. We have taken out the stope of carbonate in the west end of open-cast for July delivery, but it has not yielded quite so much as the stope for the former month, a little more pyrites and ironstone being mixed with it. Our returns of ore for July was 90 tons of 42 per cent. Having made a contract for the sale of our ore in stock, we sent away about 100 tons last week; we shall continue to send away as fast as the carriers can take it.

[For remainder of Foreign Mines see to-day's Journal.]

THE MINERAL BELT OF GILPIN COUNTY, COLORADO.

The stranger who first visits this part of Gilpin county finds his attention drawn to the deep excavations in Clear Creek, below Black Hawk, and as he proceeds further onward observes the same in Nevada, Spring, and Russel gulches; he naturally asks the object sought in the expenditure of such an immense amount of labour in turning up the detritus of these mountain ravines; he is informed they are the placer mines or gulch diggings of the district, the germ of the wealth of Colorado, and which with their ulterior results—the discovery of the gold and silver lodes—the prima-motors of its progress and prosperity. The history of those rude heaps of stone and gravel, if written, would be replete with the most thrilling incidents of human life, they would a tale unfold such as would only be received as the purest fiction, and become the subject matter for the most sensational romance; yet they are founded on facts well known to many of the inhabitants of the mountain towns. Little thought those daring pioneers of the Pike's Peak expedition—Gregory, Russel, and their hardy stalwart companions and associates of 1858-59 and 1860—that in their hazardous and labourious search for gold they were preparing the foundations of numerous opulent cities to be built on their retiring footsteps, both on mountain and plain; regenerating a wilderness and opening up habitable scope sufficient in extent for even an empire. When our tourist is told that over 5,000,000 of gold has been taken out of these five gulches, it is very likely he will want to know where it all came from. We will try to enlighten him on this interesting matter, and the best way will be to lead him direct up to its source, and that is among the rich mineral-bearing belt of rocks that crosses the county in a north-east direction. In the absence of a better appellative, we will call this formation either the Upper Silurian or Lower Devonian of the geological systems; it is quite immaterial to which it belongs, as both of them abound in the precious metals. This group of rocks is about two miles wide; in their lithological structure they differ a great deal, but in their minerals constituents a very little. Silica forms about 75 per cent. of the whole. Felspar, from 8 to 12; iron, copper, zinc-blende, sulphur, arsenic, mica, and manganate of iron, 6 per cent.; and the remaining 7 per cent. is made up chiefly of argillaceous earths and alkaline-bearing rocks; among which talc, porphyry, chlorite, and hornblende in some places figure conspicuously. These five distinetive classes may be grouped in the following order:—

1.—GNEISS: Fine and coarsely laminar but invariably ferruginous, and often striped.

2.—QUARTZITE: In segregated masses: compact, in some few instances inclined to be foliaform; hard, brittle, and crystalline: of various colours, but generally a reddish brown from the presence of oxide of iron; it assumes a stratiform position in its normal condition.

3.—GRANITE: This is all the secondary kind; there are no primitive granites, although some approach to syenite. They are formed of coarse and fine crystalline concretions, with the mica finely comminuted; it is rarely homogeneous.

4.—DIORITE: This rock, which belongs to the hornblende series, is slightly represented in the central portion of the belt. At times it is found in isolated masses, which has given it the name of black rock. It is usually in irregular contorted strata, in the schistose formation. It is the miners' enemy, as lodes become poor and often barren by its presence.

5.—PORPHYRY: Always in dykes in this part of the country, which are made up of rhomboidal blocks. It is merely felspar changed by thermal influences, with probably a slight excess of potash. It frequently takes the form of breccia. It is accompanied by hornstone, chinkstone, whin, trachyte, and other stones of the supposed igneous series. Their position in depth is not yet known. Although in themselves they are non-metalliferous, yet they play a most conspicuous part in the deposition of the precious metals; an account of which will be given in a future article devoted to the subject.

This mineral belt is divided into three ideal sections. The centre is almost exclusively gold and copper bearing, while on either side the produce is lead and silver, with their constant associates zinc-blende, arsenical pyrites, and antimony. The divisional lines are not parallel; they are subject to certain flexures and caunter courses; the gold is chiefly confined to those rocks that are quartzose or granitoid in their character, interspersed with mineralised brown gneiss. The productiveness of these lodes and veins in a great measure depends on the metalliferous nature of the rocks through which they pass. This portion of the stratum is to a certain degree more or less auriferous, and the gangue of the lodes almost exclusively so, especially where white quartz, decomposed felspar, and yellow fine-grained iron pyrites predominate. The level of atmospheric decomposition varies from 40 to 150 ft. in depth; within the limits of this distance from surface it would be almost impossible to find a cubic yard of rock that did not contain an appreciable quantity of gold. Bates Hill, parts of Eureka and Gunnell Hill up to the Nevada Flats on the north side, and Bobtail Hill, Mammoth Hill, and Quartz Hill, to the head of Russel gulch, are in the centre of the gold belt. The mines therein are exceedingly productive, and some very rich. Both north and south of these lines the formation changes by imperceptible gradations into the gnesoid or schistose rocks proper, and becomes silver-bearing. At the head of Nevada gulch there appears to be a cross or oblique channel of silver-lead bearing ground, heading away to the north side of Virginia canyon at the divide. The Nimrod, which is close to the Alps Mine, on the ridge of Quartz Hill produces both gold and silver; the eastern ground being all gold-bearing, while the western part produces silver-lead; there are to be seen courses of ore of this kind in this mine 1 ft. thick solid, and of a high specific gravity. Along the back of the lode east, in the gossans, pockets of free gold have been met with valued at over $5000 per ton. Just below this mine is a deposit of pitch-blende—uranium; the vein is small, but its product is worth about $2000 per ton; it is known as the Wood Mine. The Pewabee Mines both east and west, at the foot of Quartz Hill, in Russel guich—which may be considered the southern confines of the gold belt—are very productive; the average value of their ores exceed all others in the county. Now, at every place where these gold lodes cross the ravines the gulch diggings have been found rich. Some of the fine-grained gold is produced by the disintegration of the general formation, but the bulk of it is set free by the decomposition of the pyrites and wearing away of the back of the lodes. Fine float gold is found a long distance down the streams mingled with the sands and alluvial earth lying above the bed rock, but the coarse or grain gold is in the cements and gravel on the bed rock itself, where the ancient stream of the gulch has been obstructed by fallen rock or land slides, so as to dam it up. The accumulated gravel which is in strata, if it has laid long at rest, is often found to contain nuggets and very coarse gold. I have seen some from Russel gulch weighing 3½ ozs., and many from 5 dwts. to ½ oz. This excess of size is the result of affinity or molecular attraction, for, let it be understood, that whether in the animal, vegetable, or mineral kingdoms, there are kindred associations—affinities—"like loves likes." Among minerals atomic agglutination and crystallisation are constantly going on; all nature is in progress of growth and decay, and whether the substances undergoing these changes are iron, copper, lead, gold, sulphur, or silver; when in solution, the final result—metallic or earthy solids—are the same. We frequently find thin foliated gold in the quartz gangue of the lodes, and occasionally thread-like veins filling the joints and fractures; their position *in situ* is abnormal, and generally above water level; they emanate from the causes heretofore alluded to, assisted in their deposition by the Polar electric currents, conjointly producing a kind electro-metallurgy. Gold nuggets have very rarely ever been found in the lodes where the bounding rock, as well as the lodes, is in its normal condition.

Having now briefly pointed out the source of the gold found in the placer mines, I would intimate to all tourists who have "aims scientific," and especially those who feel a desire to practically investigate the geology of this part of the Rocky Mountains, that they can do no better than spend a week or two at Central City. They need be under no doubtful apprehensions of inconveniences and comforts; for the

magnificent hotel known as the Teller House stands unrivalled among the cities of the mountains. Coaches leave every day for Idaho Springs and Georgetown, Nederland, and Caribou. Omnibusses ply hourly between the villages of Nevada and Black Hawk. Two trains daily leave for Golden and Denver. The telegraph wires extend to all the towns, while the Pollock and other livery stables furnish saddle horses and carriages, with steady reliable drivers, at reasonable charges, available by night or day. With such unexceptionable advantages as these, a small compass, and one of Thayer's county maps in his pocket, a hammer in his hand, and a satchel by his side. The tourist will commence by crossing the mineral belt in a south-west direction—from Chase gulch on the north, to the Seaton Mine on the south. He will find the rocks exposed most of the distance, and after visiting the various mines in operation, and conversing with the mineowners and miners, I am of the opinion he will gain more real information here in one week than he could by reading all the books that were ever printed since Colorado became one of the leading gold producers of the United States. CHARLES S. RICHARDSON,
Office, Central City. Mining Engineer, &c.
—Denver Miner and Mechanic's Journal.

THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports and exports of coal into and from the port and district of London, by sea, railway, and canal, during July, 1874:—

IMPORTS.

By sea.	Ships.	Tons.	By Railway and Canal.	Tons	c.
Newcastle	156	107,565	London and North-Western	80,150	4
Seaham	12	5,258	Great Northern	53,668	0
Sunderland	56	36,385	Great Western	39,695	0
Middlesbrough	3	1,193	Midland	131,227	0
Hartlepool	82	26,992	Great Eastern	61,377	12
Scotch	20	4,862	South-Western	2,462	19
Welsh	6	1,862	London, Chatham, and Dover	1,384	0
Yorkshire	38	4,130	South-Eastern	940	18
Duff	2	1,071	Grand Junction Canal	480	5
Small coal & cinders	15	3,655			
Total	390	192,973	Total	371,385	18
Imports July, 1873	423	206,249	Imports during July, 1873	444,287	1

Comparative Statement, 1873 *and* 1874.

By Sea.	Ships.	Tons.	By Railway.	Tons.	c.
Jan. 1 to July 31, 1873	3006	1,531,802	Jan. 1 to July 31, 1873	2,898,048	0
Jan. 1 to July 31, 1874	3007	1,518,523	Jan. 1 to July 31, 1874	2,611,996	0
Increase in present year	1	—			
Decrease ditto	—	13,379	Decrease in the present year	286,052	0

EXPORTS.

Export List, showing the distribution of coal imported into the port or district of London, by sea, rail, and canal, and afterwards exported coastwise or to foreign parts, or sent beyond limits of London district, by rail or inland navigation, during July, 1874—

Railway-borne coal passing "in transitu" through district...Tons		71,424
Sea-borne coal exported to British possessions, or to foreign parts, or the coast	35,682	
Ditto, sent beyond limits by railway	5,146	
Ditto, by canal and inland navigation	1,705	= 42,533
Railway borne coal exported to British possessions, or to foreign parts, or the coast	17,157	
Ditto, by rail beyond district	326	
Ditto, by canal and inland navigation	1,048	= 18,531
Sea-borne coal brought into port and exported in same ships		2,219
Total quantity of coal conveyed beyond limits of coal duty district during July, 1874		134,707
Ditto, during July, 1873		142,811

Comparative Statement, 1873 and 1874.

Total distribution of coal from Jan. 1 to July 31, 1873	1,000,947
Total distribution of coal from Jan. 1 to July 31, 1874	941,893
Decrease in the present year	59,054

General Statement, 1873 *and* 1874.

Decrease in imports—railway and canal in present year...Tons	286,052	
Add decrease in seaborne	13,279	= 299,331
Deduct decrease in exports during present year		59,054
Total decrease in trade—consumed within the coal duty limits		240,277

THE COPPER TRADE.

Sales of furnace material have been confined to the Swansea Ticketing of Aug. 3, when 1184 tons of ore, averaging 11¼ per cent. produce, fetched an average price of 14s. per unit. A fair quantity of Chili bars have changed hands during the week at 76*l.* to 76*l.* 10s. per ton, cash terms, for good ordinary brands, and at the minimum figure holders have been firm throughout, persistently refusing all lower offers made to them. Buyers would readily have taken large parcels had they been able to find sellers at about 1*l.* reduction, but as purchases were impracticable on such conditions they have confined their operations to the supply of pressing wants.

News came from America on Friday last that the firm at the head of the "Ring" for supporting prices of Lake copper had been compelled to suspend payments. Since that time rumours have been persistently circulated that we should receive at least 5000 tons more of that description, and probably at lower prices than the previous purchases; up to the time of writing, however, no confirmation of these reports has been received, and we, moreover, learn that the sales alluded to in our circular of 17th ult. were only 2000 tons in all, and not 2500 as therein stated. Australian sorts were only in moderate request, and values remain unaltered. English descriptions are quiet, but sheets are somewhat firmer in price, there being a rather better enquiry.

The following are the Government returns for this year, as compared with 1873 and 1872, and in order to show the quantity of metal imported, ore has been reduced as containing 15 per cent., regulus 50 per cent., of pure copper:—

	1st Jan. to 30th June.		
IMPORTS.	1874.	1873.	1872.
Copper in ore...Tons	3,533	3,876	3,543
Ditto in regulus	6,377	7,430	7,833
Ditto in bars, cakes, ingots, &c.	21,560	17,172	23,325
	31,470	28,478	34,701
EXPORTS.			
Foreign copper	12,526	10,759	4,368
Raw English ditto	4,905	7,429	7,170
Manufactured ditto	5,501	5,088	4,656
Yellow metal	7,286	4,964	5,518
Brass	2,831	1,718	1,657
	33,049	29,958	23,369

The following were the stocks (estimated in pure copper) in the ports named, also the quantity of Chili chartered and afloat for same:—

		1874.		August 1.		
		Jan. 1.	July 1.	1874.	1873.	1872.
Liverpool and Swansea.	Chili—in ore, regulus, and barilla....Tons	3,123	3,205	4,006	4,177	525
	Chili—in bar and ingot	15,247	14,315	14,215	19,681	17,088
London	Foreign copper, chiefly Australian	5,467	6,253	5,364	5,534	7,864
	English copper	127	100	99	273	401
Havre	Chili bar and Barilla	1,680	2,888	3,783	1,845	150
	Other foreign	200	140	250	300	Nil
Actual stocks		28,844	26,901	27,986	31,812	26,028
Chili, chartered and afloat		7,271	5,596	4,929	7,672	11,802
Gross total		36,115	32,497	32,915	39,484	37,830

The following were the imports from January 1 to July 31:—

	1874.	1873.	1872.
West Coast copper into England and France...Tons	29,472	23,671	28,614
Other foreign into London	8,348	8,196	11,295
Total	37,820	31,867	39,909
In July only:—West Coast copper...Tons	5,178	4,152	5,175
Other foreign	300	736	1,349
The following were the deliveries from stock in England and France from Jan. 1 to July 30...Tons	38,678	32,806	33,200
During July only	4,483	3,941	2,830

The direct imports from the West Coast of South America into England during the month of July were equal to 4062 tons pure, into Havre, 1116; and during the same period 390 tons of other foreign copper entered the Port of London, making together a total of 5568 tons. The mails received here from Chili during July advised charters for together 4399 tons, against 3314 tons during July, 1873, and 4305 in July, 1872. During the present year 28,696 tons have been so advised, against 24,510 tons in 1873, and 27,695 tons in 1872.

10, *Austinfriars, August* 7. JAMES AND SHAKSPEARE.

The completion of the cable to Valparaiso, and the break up of the Copper Ring in New York, are the leading features in the market for the past month. These have decidedly had the effect of unsettling the minds of most of the trade, opinions being very much divided as to how either event will influence prices. Notwithstanding some very strong buying during last and the current week, it seems most probable, looking at the unsettled state of the market generally, and the almost assured advance in money, that prices may for a time rule somewhat lower as autumn approaches. With regard to our being now so much closer to Chili (the principal producing country), the first effect may be temporarily to increase the quantity of available copper, but by degrees this position will change, and we may, before long, look to the stock being rather kept on the West Coast than in Europe, as heretofore, and as stocks this side are worked off there will necessarily be less margin between prices in Chili and here. Whether this will tend to increase the production or not remains to be seen, but we think it certain that the production will not decrease. While, however, Chili produces only 45,000 tons per annum, and our exports of all sorts keep up to present quantities, say 60,000 tons per annum, we need not look for any material change in the value of Chili copper, taking into consideration the present basis; it will probably fluctuate in some slight degree whilst the present transition lasts, but with current quantities of supply and demand it may be assumed that something like 75*l.* is not an excessive price. Some large quantities of bars have changed hands in the past 10 days at prices ranging from 75*l.* 10s. to 78*l.*, according to terms and prompt, and some small sales of ores and regulus have been reported at 14s. 6d. and 15s. At the Swansea ticketting on the 4th August 1108 tons found buyers at an average only of 14s. The figures which we annex are made up as heretofore, and show but a very slight difference compared with last month. The charters to the 20th July (3000 tons) should be added to make the figures close up to that date. The total charters to the 30th June were 24,000 tons, and for that period last year 24,200 tons. The total shipments to the 16th June last were 22,115 tons, and in the corresponding period of 1873, 20,272 tons.

The imports of copper into England for the first six months of the following years were—1870, 31,440 tons; 1871, 33,698 tons; 1872, 41,552 tons; 1873, 35,339 tons; and 1874, 38,506 tons. The exports for the same periods were—1870, 31,074 tons; 1871, 21,612 tons; 1872, 20,747 tons; 1873, 27,542 tons; and 1874, 29,427 tons.

The position from August 1, 1873, to August 1, 1874, was as follows:—

	Price.	Stock on hand.	Stock, including afloat and chartered.
1873—August 1	£81 0 0	Tons 31,607	Tons 39,279
September 1	84 0 0	29,983	37,521
October 1	82 0 0	28,637	35,405
November 1	83 0 0	28,645	34,637
December 1	83 0 0	29,141	35,526
1874—January 1	84 0 0	28,592	35,863
February 1	82 0 0	29,682	36,606
March 1	78 0 0	29,643	35,293
April 1	75 0 0	29,500	36,908
May 1	74 0 0	30,643	36,993
June 1	75 0 0	27,522	34,238
July 1	78 0 0	26,879	32,275
August 1	76 0 0	27,762	32,691

And the comparative positions at the same date of the past four years with the present are as follow:—

	Price.	Stock on hand.	Stock, including afloat and chartered.
1870—August 1	£ 83 0 0	Tons 29,552	Tons 41,337
1871—August 1	68 0 0	28,534	36,680
1872—August 1	103 0 0	27,733	37,733
1873—August 1	81 0 0	31,607	39,279
1874—August 1	76 0 0	27,762	32,691

Leadenhall-street, London, August 6. HENRY ROGERS, SONS, AND CO.

Business transacted during the fortnight comprises about 2800 tons Chili bars for cash, at 75*l.* 10s. to 78*l.* per ton, and to arrive or with extra prompt about 1300 tons, at 76*l.* to 78*l.* per ton. At Swansea 1225 tons regulus at 15s. 6d. to 15s., and 595 tons ore at 15s. to 14s. 7d. per unit. At the Swansea sale, by tender, on the 21st inst., 983 tons ore, average produce, 28 5-16 per cent, realised 15s. per unit. Arrivals here during the fortnight of West Coast, S.A., produce:—Hertfordshire, from Valparaiso, 100 tons bars; Oruro, from Valparaiso, 20 tons bars; Advancement, from Valparaiso, 48 tons bars: Chimborazo, from Valparaiso, 510 tons bars, 270 tons ingots; Ann Gambles, from Pisagua, 100 tons Barilla. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	1559	1278	13,080	20	100
Swansea	3173	5776	1,140	—	—
Total	4732	7054	14,220	20	100

Representing about 18,400 tons fine copper, against 19,200 tons July 15; 23,900 tons July 31, 1873; 17,600 tons June 31, 1872; 19,500 June 31, 1871.

Liverpool. J. PITCAIRN CAMPBELL AND CO.

THE TIN TRADE.

Throughout this month the Tin Market has been weak and inanimate, resulting in a decline of about 3 fl. The Dutch Trading Company's fourth sale in 1874, announced on the 8th inst., took place the day before yesterday, when the 22,058 slabs Banca were sold from 55½ fl. to 57 fl., average 56½ fl. Next sale will probably be held towards the end of September. For Banca the demand has been limited, the flat reports from the London market rendering buyers exceedingly cautious. From 59½ fl. the price gradually gave way to 57 fl. Since the sale there are buyers at 56½ fl. Contracts for delivery ex July sale changed hands from 59 fl. to 55½ fl.; ex September sale from 58½ fl. to 55¾ fl. Billiton was pretty firmly held at 56¼ fl. until last week, when a sudden collapse took place, the price at one time receding to 54 fl., there being now sellers at 55 fl. In parcels to arrive business has been very small, 55 fl. being the nominal quotation. On Monday, Aug. 10, a public sale comprising 8000 peculs Billiton will take place at Batavia. The position of Banca in Holland, on July 31, according to the official returns of the Dutch Trading Company, was—

	1874.	1873.	1872.
Import in July...Slabs	18,080	12,416	4,258
Total seven months	92,995	134,278	56,180
Deliveries in July	7,549	9,000	7,400
Total seven months	76,172	81,119	59,185
Stock second-hand	29,058	28,496	27,682
Unsold stock	122,385	125,628	36,715
Total stock	151,443	154,124	63,397
Afloat ...Peculs	13,200	13,900	27,420
Statement of Billiton:—			
Import in July...Slabs	5,300	4,500	6,234
Total seven months	47,300	39,600	25,542
Deliveries in July	9,575	3,800	1,350
Total seven months	43,945	41,140	21,683
Stock	28,575	13,353	7,615
Afloat ...Peculs	8,000	7,906	8,785
Quotation Banca	54½ fl.	80 fl.	96 fl.
July 31 Billiton	55	79	94

These combined returns of Banca and Billiton for 1874, compared with those for 1873, exhibit—An increase of the import for July of 202 tons; a decrease of the import for the seven months of 1050 tons; an increase of the deliveries for July of 135 tons; a decrease of the deliveries for the seven months of 67 tons; a increase of the stock second-hand of 493 tons; a decrease of the unsold stock of 101 tons; an increase of the total stock of 392 tons; a decline of the quotation of Banca of 39*l.* 3s. per ton.

The Government Returns for the month of May are as follows:—

EXPORT OF TIN FROM HOLLAND.

	May.			Five months.		
	1874.	1873.	1872.	1874.	1873.	1872.
Germany...Tons	185	295	198	1415	1385	1098
England	34	192	10	143	888	77
Belgium	50	136	72	602	472	448
France	38	46	6	120	213	38
Hamburg	16	19	39	171	146	135
United States	—	—	—	16	—	—
Other countries	4	65	83	105	92	107
Total	327	753	408	2572	3196	1993

Rotterdam, July 31. EBELING AND HAVELAAR.

English continues dull at our list quotations. In foreign sorts the improvement noted in our last issue has entirely disappeared, and values have declined 1s. to 2s. per cwt. since that date, without, however, inducing any particular demand, purchases being restricted to the supply of absolute requirements. At the ticketing of ore on the 4th inst., 100 tons Australian sold as follows:—4 tons inferior, 15*l.* per ton; 12 tons common, 27*l.* 15s. to 36*l.*; 84 tons good and fine, 4*l.* 5s. to 5*l.* 10s. For the sale on the 18th inst. about 30 tons Australian and 9 tons Peruvian have been declared.

The following shows the position of available foreign tin:—

	1874. Jan. 1.	July 1.	August 1. 1874.	1873.	1872.
Stock in London...Tons	2038	2556	2404	1956	1982
Banca in Holland (in second hands)	614	455	908	890	865
Billiton in Holland	857	1122	952	445	254
Actual stocks	3509	4133	4264	3291	3101
Straits afloat for Europe	510	700	730	500	1074
Billiton ditto	364	350	467	461	512
Australian ditto (incl. tin in ore)	1061	800	900	370	109
Gross total	5444	5983	6361	4622	4796

The following shows the position of Banca tin in hands of Dutch Trading Co.:—

Unsold in warehouse...Tons	3592	3949	3825	3926	1113
Afloat for Holland	365	425	770	810	1597
Total	3957	4374	4595	4736	2710

The following represents the quantity of tin brought to market between Jan. 1 and July 31, as compared with 1873 and 1872:—

	1874.	1873.	1872.
Sales of Banca by the Trading Company...Tons	2671	2350	1649
Imports of Billiton	1576	1320	851
Imports of Straits	1779	3504	5307
Imports of Australian in tin	1991	148	5
Metal	8017	7322	7812
Imports of Australian, pure, in ore	2266	1560	79
Gross total	10,283	8882	7891
Deliveries of foreign tin in London and Holland, Jan. 1 to July 31...Tons	7262	6558	7180
During July	1183	885	812

The following are the statistics of Australian tin (reduced to pure metal), the ore being estimated to contain 70 per cent.:—

	1874.	1873.	1872.
Imports into London, Jan. 1 to July 31	4527	1708	84
Ditto during July	291	197	14

August 7. JAMES AND SHAKSPEARE.

CHEMICALS AND MINERALS.—Messrs. R. R. Kelly and Co.: The Chemical Market appears to have been in no degree retrospective, although there is no particular improvement to record since our last. Both foreign and home demand have been fairly active, with a tendency to improved values. Probably some makers of chemicals have taken a step in advance and submitted to small marginal profits in order to secure a few forward contracts from new customers; but these occasional eccentricities do not in the least affect quotations in general, for that which is done in the dark runs the unpleasant risk of being unfaithfully reported, and said sales may not have taken place after all. Soda salts have shown a little more buoyancy. Bicarbonate not quite so dull. Nitrate yielding a little. Soda crystals and ash rather more doing. Caustic not over brisk. Potash salts average trade. Chlorate still dull. Bichromate firm. Prussiates tending downwards. Alum very firm and in strong demand. Saltpetre in rather more favour. Salt cake more doing. Sulphate of ammonia improving and in short supply; holders stiff as to price. Bleaching powder not more plentiful in the face of increasing demand. Brimstone easier. Acids without material change. Copperas brisker. Copper sulphate declining. Zinc sulphate and magnesia carbonate steady. Manurial salts commanding great attention. The Mineral Market can be said to have improved only as regards the labour question, which, although by no means settled, is gradually undergoing subsidence. Coal abruptly introduces itself everywhere without apology, and both those who own it and those who "win" it have learned to magnify their true position. They have been told often that all our arts have been borrowed from other nations, excepting those that have sprung out of the use of coal; that it is the basis of the nation's present material power, and that this ready source of fire, heat, steam, mechanical motion, and chemical change has become the mainspring of our marvellous industries; and, in short, the mainstay of the country. So much could not be said of anything else. They have seen, too, that mining profits and losses have been shared by all grades of the community, from the prince to the peasant; and the miners, fancying themselves excluded from their full share of the former, have been lately thrusting their fingers rudely into the pie, to be rewarded with the discomforting sour taste of the latter. In anticipation of "things coming right" very soon, it well be well to guard against the folly of expecting to establish any normal value of coal. The cost of "winning" coal always has been and always will be very variable. Nature furnishes the first conditions, to which all appliances, manual and mechanical, must subserve. Local circumstances vary extremely; the differences of cost in overcoming natural difficulties must be considerable. With free labour, labour cost will always depend upon the exercise of the free-will of the labourers, and when "they take it into their heads" to withdraw themselves from work in an evil spirit, it is not easy, as we have recently seen, to find an exorcist. The value or selling price of coals, therefore, must be governed primarily by local cost of production, and trade will find centres, for the most part, where coal and iron are cheapest, and there, too, will industrial genius focus. It is not surprising, as some make out, that coal costs more to get than it used to. More than 250 years ago Dudley said, "He that liveth longest let him fetch his fire furthest," and although our chief collieries are most of them deep and wet, men will be found to go any depth after coal for "good wage," which involves the idea of increased cost and ability of some wanting the article to pay for it. On the other hand, it is probable that when the fringe of the commercially possible is touched, one-half the quantity of coal, as we now use it, may suffice for doing double or treble the amount of work. Colliers' wages have been generally reduced, but the price of coal at some of our busiest iron centres are needlessly dear. For example, at the shallow pits at Dronfield coal sells at 11s. to 12s. per ton, where a good collier and his boy, working in 4½ feet seams, will earn 18s. to 20s. in a short day, by giving their master 5 or 6 tons of coal ready for the hauling. Sheffield may well complain. The general demand for coal appears to have increased, and prices are easier. Ironstone has not been at all brisk, although lower rates are offered. Copper ores find eager buyers. Metalliferous ores generally are scarce, and fetch full values. No fresh sources of supply are pointed out. The few holders of tin ore are reluctant to sell at present prices. Lime phosphates, pyrites, and guano in full request. Salt is likely soon to form a new industry on the banks of the Tees. Following up our statistics last week of the world's present coal production, it is interesting to note the carrying power possessed by the principal maritime countries. In 1872 the total mercantile tonnage of the British Empire was 7,213,829; United States (over sea), 1,410,648; France, 1,077,611; Holland, not stated, but 521,095 in 1871; Norway, 1,062,274 tons; being, as compared with 1871, an increase of 71 000 British tonnage: a decrease of 14,494, United States; an increase of 5503, France; and 39,759 tons, Norway. British steam tonnage was 1,640,639; United States, 177,666 tons.

THE CRANSTON ROCK DRILL AND STONE BORER.

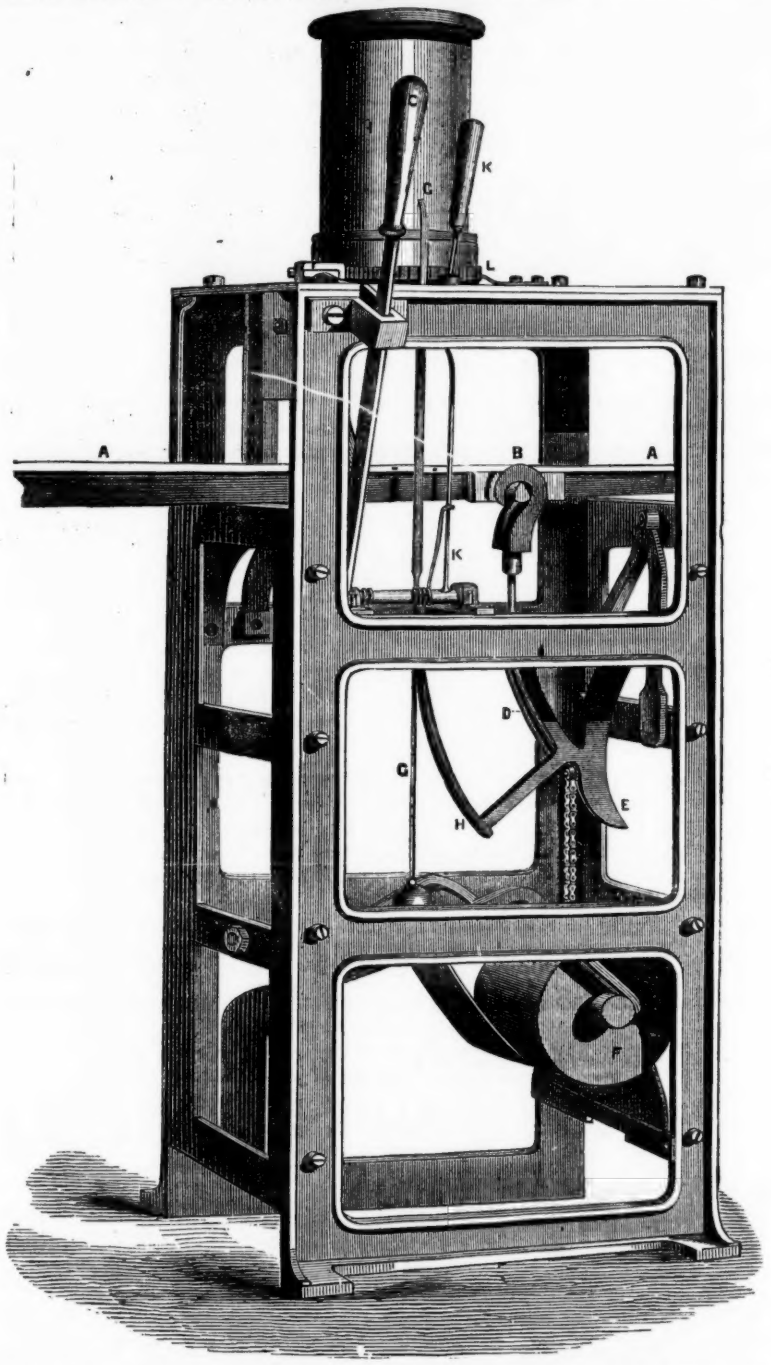
Although comparatively little prominence has hitherto been given to the Cranston rock-drill, it appears that the introduction of the machine has been steadily going on, the drills being already at work in various parts of the world; and at the Agricultural Show, held in the Bull Park, Newcastle-on-Tyne, during last week, the Cranston drill, which received a first prize and a silver medal, formed one of the most attractive features among the machinery that was in motion. The machine was tested upon a huge block of freestone, into which it bored holes with the greatest celerity. The tool is described as being very simple and useful, and whether worked with steam or compressed air it is equally applicable to the boring of holes in rock of any description, from the softest sandstone to the hardest granite, whilst it is so readily portable that one man can move it from place to place with the greatest ease. Having been for a considerable time engaged in working various rock-drilling machines, Mr. Cranston claims to have become well acquained with the practical requirements of a machine suitable for use in tunnels, mines, quarries, and other places, and has succeeded in producing a drill which has many important recommendations. It will bore a hole 2½ in. in diameter, at the rate of from 2 in. to 1 ft. per minute, the rate depending upon the hardness of the stone—the rate through Aberdeen granite being from 2 to 4 in. per minute. The working parts of the machine are simple, strong, and not liable to get out of order; the drilling-tool is self-rotary, but the machine is so arranged that the drilling-tool can be rotated by hand, so that when working in stone of unequal hardness, or containing cavities, it can, in the case of the drill becoming jammed in the hole, be readily moved round and liberated; it is easily worked, and at any angle with a pressure of but 20 lbs. of steam or air; is so short and light that the machine and tripod together weigh but 2 cwts.; will bore a hole 12 ft. deep, the drilling tool being changed for every 2 ft.; and the valve can be readily adjusted so as to regulate the force of the blow to the varying nature of the stone to be bored and depth of hole.

During the trials at the Bull Park a 2¾-inch hole was several times put down 16 inches in 90 seconds, or at the rate of nearly 11 inches per minute, and Mr. Cranston was careful to demonstrate that in constructing the machine of comparatively slight and short dimensions he has lost neither power, strength, or simplicity. It should be stated that when used for coal-cutting a suitable instrument can be substituted for the usual drill tool, and what is called a "slotting" motion can be obtained at pleasure. The inventor has also patented a carriage on which the drill can be placed for tunnelling purposes, and by its use one man is enabled to place the machinery in all the necessary positions suitable for blasting, and also possesses the advantage, from the manner of its construction, of allowing the debris to be cleared out of the way of the workmen without trouble. One of Mr. Cranston's machines is now working daily at the Tyne Bridge Works, and Mr. M. C. Brown writes that it is doing its work well, adding that they have given it a thorough test at the centre pier of the Tyne Swing Bridge in the hardest of Swedish granite, and he has no hesitation in saying that it is a simple, strong, and efficient machine. They are at present working the drill 220 ft. from the boiler, with a pressure of 30 lbs. to the square inch. An equally satisfactory opinion is expressed by Mr. Robert Watson, engineer to the Marquis of Londonderry for the Seaham Harbour Works, who states that on one day they drilled over 50 ft. of holes in the limestone there, which is a very uneven and difficult stone to bore. Their longest drill is 5 ft. 6 in., with 1¾-inch lips, which they have been using with the machine for the last four months. There will be no difficulty in drilling holes 9 ft. deep, as he finds the machine works as well with a long drill as with a short one. They work the machine from a small vertical boiler with an average pressure of 35 lbs, At the Eskett Iron Ore Company's mines they had two drills—Nos. 1 and 3—at work in November last, and both were giving every satisfaction, for Mr. John Burns, the manager, then wrote that the previous week they had bored three holes in very hard iron ore. First hole, 5 ft. 6 in. deep; second hole, 6 ft. 6 in. deep; third hole, 7 ft. 6 in. deep. From setting the machine for the first hole to finishing the third hole, changing drills included, they bored 19 ft. 6 in. in 2½ hours; the air-receiver was kept at 40 lbs. pressure. The machine is of such a simple character that it can be worked after a very slight experience. At the Tyne Bridge piers it was placed in in the hands of a workman one day, and he was able to control its motions without assistance the next morning. The drill was carefully inspected by many competent persons, and admitted to be a thoroughly good and reliable machine.

ARTIFICIAL FUEL.—A new machine, which by the use of artificial heat turns out peat fuel in 48 hours, has for some months been in successful operation in Connecticut, and a contract with a railroad company for one lot of 500 tons has been in process of fulfillment, it is said, to the satisfaction of both parties. A perfected apparatus, embodying the better features of the oldest machines, and unique in the utilisation of exhaust steam as a drying medium, is now brought before the public. A mill, whose vat is surrounded by a steam jacket, receives the peat, free from sticks and stones, but containing from 40 to 60 per cent. of water, and a semi-fluid mass of creamy consistence is rapidly formed. Into the centre of the peat, from above, projects a standpipe from a high pressure boiler, and just below it, another pipe leading through the furnace of the boiler receives the fluid heat, driven into it by steady steam jets from above. Through this furnace heated pipe the peat is slowly driven, becoming each moment less watery and more adhesive, as its moisture is driven off in vapour, and its latent resinous products melt and develope under the surrounding heat. At last it emerges a sticky, heated mass into a circular chamber, where the ceaseless blows of a massive iron plunge forces out a coil of cylindrical peat fuel, from 2 to 8 in. in diameter, while the surplus steam passes into a steam jacket, which keeps up the heat of the chamber. The product is a hard black substance, weighing about 70 lbs. to the foot, and containing only 5 per cent. of moisture. It contains scarcely any grit or incombustible matter, and it is said that several railroads and iron furnaces stand ready to contract for it in quantities of thousands of tons, at $5 per ton. A short half hour, it is said, is all the time required to perfect the raw material by this process, and the same furnace drives the engine, supplies the steam, and heats the pipes, by which the moisture is driven off, and the latent tarry products evoked and utilised.—*Commercial Bulletin, Boston.*

PATENT STEELYARD INDICATOR.

Various enquiries having been made as to this apparatus—the invention of Mr. JAMES MACKENZIE, late of the General Managers Department, North British Railway—we subjoin a description. The indicator is merely an appendix to the steelyard, or "index lever," of the ordinary weighing machine—taking the place of the sliding and loose weights commonly used. The counterpoise is a single weight suspended from a fixed point at or near the extremity of the steelyard; the mode of suspension being such that the further the steelyard is caused to rise the greater becomes the resistance of the counterpoise, which is thus entirely self-acting. The indicating portion of the invention consists of an upright cylinder carrying a diagram graduated to tons and fractions, and divided into vertical columns throughout the whole circumference of the cylinder. In front of this an upright rod, suspended from the counterpoise mechanism, rises and falls with each movement of the counterpoise, and upon a load being brought upon the weighbridge the weight is immediately pointed out upon the diagram by the upper end of the suspended rod. This upper end is serrated and set over at right angles, the extremity almost touching the diagram, and upon the weight being indicated a hammer falls and strikes the extremity through the diagram at the indicated weight, making an indelible mark. The cylinder is then advanced so as to present the next column to the pointer, and so on until the whole weighing is completed. The preceding applies more particularly to the form of indicator used for weighing trains of mineral wagons while in motion, and the woodcut represents a machine of this class. The sole duty of the attendant is to release the steelyard by means of the "controlling handle," and lock it down as each wagon is weighed. The counterpoise is made to increase in its resistance by being suspended from a quadrant vibrating between fine points, or upon knife-edges, from which quadrant a curved arm projects, carrying the chain to which the counterpoise is attached. The curve of the arm is such that the leverage of the weight increases equally throughout for every equal increase of load. The rise of the steelyard is steadied by what may be called a pneumatic curb, which consists of a small bellows, or a barrel and plunger with adjustable valve or opening, so that a sudden rise is resisted by atmospheric pressure, and undue oscillation prevented.



A, A.—Steelyard.
B.—Knife-edge attachment (as used at present), to which the indicator is coupled.
C.—Controlling handle for locking and releasing the steelyard.
D.—Vibrating quadrant, attached by hook to B.
E.—Curved arm, carrying the chain of the counterpoise F.
G, G.—Pointer, suspended from prolonged arms, H, of the quadrant.
I.—Cylinder carrying the graduated diagram.
K, K.—Hammer worked by controlling handle.
L.—Ratchet worked by same, for intermittent movement of cylinder.

The Indicator is made in the following forms:—

1.—For road wagon or cart weighing. The movement of the counterpoise is simply shown upon a dial. The whole arrangement is self-acting, the attendant having merely to read off and enter the weight as shown.

2.—For railway use—described above.

3.—For colliery use. Two cylinders and a continuous diagram are used, so as to provide for a whole day's weighing. The weigher has to release the steelyard as each "tub" is put on, and lock down as it goes off. Each miner's number may be marked at the top of the weight column. The whole apparatus is under lock and key, only the cylinders and controlling handle being accessible.

4.—For weighing day and night charges at chemical works, &c. The cylinder is worked by a clock, and each operation shows both the weight and the hour of change.

5.—For railway use, entirely self-acting. The mechanism is worked by the wagon wheels, the attendant having only to put the machine in gear, note the numbers and tares as the wagons pass, and lock down when the weighing is over.

The chief objects of the invention are to obtain accuracy in weighing, and also a permanent record of the weights, besides, especially in railway work, simplifying the duties of the weigher. From eight to ten railway wagons may be weighed per minute, provided the weighbridge is of proper length. "Lorries" might succeed one another at about half-minute intervals; coal tubs at the rate of four or five per minute if necessary.

The apparatus necessitates no alteration whatever upon the ordinary weighing machine. It can be attached in a very short time in most cases, and in the event of derangement (which is not much to be feared, as the mechanism is very simple, and may be substantially constructed) it can be uncoupled, and the present method reverted to upon a few minutes' notice.

The Royal Scottish Society of Arts awarded the "Keith" prize (the highest in the gift of the Society) to the inventor, and the North British Railway Company have acquired the right of making the machine for their own use. It has been for some time in use by that company, who are about to apply the entirely self-acting form to the weighing machines at the more important stations.

The makers are Messrs. SAMUEL LAMONT and Co., Abbot's Engine Works, Falkirk.

VARLEY & YEADON, COLLIERY & BRICK-MAKING ENGINEERS,

Manufacturers of WINDING, HAULING, and PUMPING ENGINES, Boilers and Fittings, Steam Piping, Donkey Pumps, Lift Pumps, Perforated Clay and Mortar Mills, Brick Presses, Pug Mills, Round and Flat Rope, Pit-head Pulleys, Wrought-iron Head Gear, ROOFS and GIRDERS, Kibbles, ONE, TWO, and THREE-DECK CAGES, COAL TIPPING and SCREENING APPARATUS, VENTILATING FANS, TUBBING, GIRDERS, PILLARS, POINT PLATES. Steam or other Cranes, Crabs and Windlasses, Machines for Cutting Stone, &c.

CROWN POINT FOUNDRY. LEEDS.

Estimates furnished on application.

ENGINEERS' TOOLS. LATHES. DRILLING MACHINES. LIFTING JACKS. HOISTING CRABS. HORIZONTAL STEAM ENGINES. &c., IN STOCK.

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Catalogues *on application.*

FOREIGN MINING AND METALLURGY.

The Paris copper market has been somewhat feeble. Chilian, in bars, has made 83*l.*; ditto, ordinary descriptions, 81*l.*; ditto in ingots, 88*l.*; English tough cake, 88*l.*; and pure Corocoro minerals, 82*l.* per ton. Lota and Urmeneta have brought 81*l.* per ton at Marseilles. The markets appear to have taken rather a better turn in Germany, but there has been no material change in quotations. At a sale of tin held by the Dutch Society of Commerce at Amsterdam on July 29, Banca changed hands at 55½ fl. to 57 fl., showing an average of 55¾ fl. This appears a comparatively moderate price, if we take account of the small quantity of Banca disposeable. Since the sale transactions in Banca have been reported at as high a price as 56¾ fl. Billiton tin has been quoted at 55½ fl. At Paris tin has been inactive. Banca has made 104*l.*; Straits, 102*l.*; and English, 99*l.* 4s. per ton. Upon the Marseilles market tin has been rather weak. Lead has sustained its price well at Paris; French, delivered at Paris, has brought 21*l.* 8s. per ton; and Spanish, delivered at Havre, 21*l.* 4s. per ton. The Marseilles lead market has been quiet, with no great amount of business passing. The German lead markets have been pretty well sustained. Zinc has been rather weaker at Paris; Silesian, delivered at Havre, has made 22*l.* 16s.; other good marks, delivered at Havre, 22*l.* 12s.; and ditto, delivered at Paris, 22*l.* 16s. per ton. Rolled Vieille-Montagne zinc has made 31*l.* 4s. at Marseilles. The German zinc markets have been rather firmer.

The Belgian iron districts are extremely quiet just now. The works have a sufficiency of small orders to keep them employed for the time, and to enable them to wait without much impatience for the revival of affairs, which will probably appear, as usual, in the autumn. Merchants' iron is somewhat more neglected; on the other hand, plates, sheets, and rails are more in demand than they were recently. Girders are also in request, and some rather large lots are stated to be in course of manufacture on English account. Under these circumstances, no improvement in prices in Belgium can be anticipated for some little time. At an adjudication which has just taken place for the supply of No. 3 rolled iron for the use of the Louvain Works of the Great Central Belgian Railway, the Acoz Forges Company obtained the contract at 8*l.* 14s. 6d. per ton. The highest tender submitted was at the rate of 9*l.* 12s. per ton. The Administration of the Belgian State Railways has let rather an important contract for trucks. This contract was contended for by all the leading Belgian mechanical firms, and it was shared between MM. Cabony; Verhaegen, of Malines; and A. Germain, of Marchiennes. Although pig has exhibited some little feebleness in Belgium several furnaces have been re-lighted. Among the furnaces thus re-lighted may be mentioned that of St. Martin, near Longwy. Merchants' iron has remained quoted in Belgium at 8*l.* 8s. per ton, and plates at 11s. 4s. per ton.

An advance in the price of coal has been talked of for some time past in Belgium, but August 1 has come and gone without any such rise having been attempted. It is satisfactory that this should have been the case, as many industries, at present in a depressed and suffering condition, will now have some chance of recovering themselves. There has been rather a notable falling off in the deliveries during the last few days as well by water as by railway, so that for some time to come it will probably be possible to lay in supplies readily. The Grand Machine a Feu de Dour Colliery Company paid Aug. 1 an interim dividend of 8*l.* per share for 1873-4.

The imports of pig into France in the first half of this year present a decline of 24 per cent., as compared with the corresponding period of 1873. The exports of pig from France also exhibit a decrease of 9 per cent., as compared with the corresponding period of 1875. The imports of pig into France have declined because the general demand has experienced a reduction; the exports of pig from France have also declined, because business has been dull in almost all countries. Upon the whole, the French iron trade appears, however, to be in a slightly better condition than it was six months since. Thus quotations have been a little better supported, and the demand has been rather more active at 9*l.* 12s. per ton for merchants' iron upon the Paris market, and 8*l.* 16s. per ton in the Haute-Marne and the Nord. A contract for rails has just been let by the Vendean Railway Company; the lowest tender, 9*l.* 16s. per ton, was that of the Commentry and Four Chambault Works; the highest tender delivered was 11*l.* 4s. per ton. The rate for fish-plates was 10*l.* 8s. per ton; this was rather a high price, and the competition exhibited rather an upward tendency in prices. In several localities a disposition is exhibited to re-light blast furnaces. In the Loire the state of affairs is improving.

In the French coal trade affairs are generally quiet; coalowners are waiting for the commencement of the winter season. What prevents an increase of animation in the trade is the prolonged stagnation which exists in so many industries. A downward movement, which might otherwise appear in quotations is prevented by the reduction which has been effected in the production. Upon the whole, it may be said that there has been but comparatively little business passing, at about previous rates. The imports of coal and coke into France have declined this year to the extent of about 300,000 tons. Thus the tax imposed on railway goods and mineral traffic by the French National Assembly has produced a sensibly smaller amount than that which figured in the budgetary estimates made on the subject. This would seem to indicate a slackening in French industry generally. No improvement in the French coal trade appears probable before the winter. M. Larne has just published a manual (which is likely to be of special utility to the French coal trade) on the navigable streams of France. The work gives a mass of information as to their draught of water, the duties levied, the rates of freight, &c.

STEAM-PUMPS.—Mr. T. LUMLEY, of Harborne, Stafford, mechanical engineer, has patented some improvements in steam-pumps. This invention consists in working the steam-cylinders of steam-pumps by arranging at each end of the steam-cylinder a chamber in a small cylinder, in which chamber a valve works for putting the cylinder in communication either with the exhaust or with the steam. An opening is made near each end of the steam-cylinder, the opening at one end being in communication with the valve-cylinder at the other end of the steam cylinder. As the piston approaches the end of its stroke, steam is allowed to pass through the opening in the steam-cylinder to the valve-cylinder at the other end of the steam-cylinder, and the valve therein connects the steam-cylinder with the exhaust; at the same time the steam-cylinder piston strikes the valve at the same end of the cylinder and opens the steamway. The piston in completing its stroke in either direction is thus made so to act upon the valves as to change that which was the exhaust side of the piston into the steam side, and the reverse.

Mr. H. CHERRY, of Handsworth, mechanical engineer, in his improvements in steam-pumps places a loaded valve in the suction pipe for the purpose of producing a vacuum into which the exhaust steam is discharged. At the upper part of the condenser is a chamber which first receives the water raised, and from which it passes through a loaded valve, by which it is spread into a thin sheet, and then falls into the condenser. A bell-mouth pipe is situated in the axis of the condenser, the lower end of the said pipe leading to the pump. By this arrangement a quantity of water always remains in the condenser, which effects the condensation of the steam when the steam-pump is first started. Various arrangements are described for pressing the loaded valve to its seat. The suction valves of steam-pumps having condensers are made of thin sheet metal, dished or turned up at the rim, the extreme edge being turned down to form a lip. The valve seat is ribbed. A light valve capable of opening readily and of being rapidly closed by the action of a spring is thereto formed.

A third invention, patented by Mr. CLARKE (for Mr. Atkinson, of Illinois), consist in the combination with a main cylinder having steam ports, and a piston-rod carrying a middle piston and two pistons of cylinders placed at opposite ends of the main cylinder, having respectively water inlet and outlet, and connected by a channel way, a continuous flow of water at the exit being produced. The invention also consist in the arrangement of the valves in the ends of the steam chest for convenience of access.

CONVERTING CAST-IRON INTO STEEL.—Mr. A. BROWNE (for the Foundries and Forges Company, of Terre Noire, La Voulte, and Bessèges) has patented a new process of converting cast-iron, wrought-iron, scraps, old rails, and such like materials, into steel, or metal having the properties of steel. The feature of novelty of this invention consists in a process of converting cast-iron, wrought-iron, scraps, old rails, and such like materials into steel, or in a metal having the properties of steel, by means of phosphorus, silicium, borium, arsenic, manganese ferro-manganese, or ferro-silicium combined therewith in small proportions.

THE PATENT SELF-ACTING MINERAL DRESSING MACHINE COMPANY (LIMITED).

T. CURRIE GREGORY, C.E., F.G.S.
OFFICES,—150, ST. VINCENT STREET, GLASGOW.

IMPORTANT NOTICE TO MINE PROPRIETORS.

This company grant licenses, under their patents, for the use, singly or in combination, of the most approved machinery for dressing ores, comprising Stamps Jiggers, Classifiers, and Buddles.

MR. GEORGE GREEN, Mechanical Engineer to the above Company, SUPPLIES MACHINES under the above Company's Patents for DRESSING all METALLIC ORES. Dressing-floors having these Machines possess the following advantages:—

1.—They are cheaper than any other kind in first outlay.
2.—From 60 to 70 per cent. of the labour is saved.
3.—Only about one-fourth of the space usually occupied by dressing-floors is required.
4.—The ore is made clean at one operation, and 5 per cent. of ores otherwise lost is saved.

Drawings, specifications, and estimates will be forwarded on application to—
GEORGE GREEN, M.E., ABERYSTWITH, SOUTH WALES.

EXTRACTS FROM TESTIMONIALS RECEIVED:—

Mr. C. E. BAINBRIDGE, of the London Company's Mines, Middleton-in-Teesdale, by Darlington, writing on the 27th September, 1873, says—"After a full season's experience of the very complete Dressing Machine erected by you at our Colberry Mines, we are fully satisfied with our decision to adopt your patents in preference to all others. The machinery does its work as well as we can desire, and better than we anticipated. We are now getting through 70 tons of orestuff per day, of rich quality. Without your machinery we should have been at a stand still, for we cannot get hands to supply our wants elsewhere. It saves fully one-half of the old wages, and vastly more on the wages we now give, and the saving in ore is not much short of 10 per cent. You can quote from this letter as you think proper."

Mr. COULTAS DODSWORTH, of Haydon Bridge, writes, on the 15th January, 1874:—"I have just returned from the Stonecroft and Greyside Mines, where I have seen your 'Patent Ore Dressing Machinery' at work, with which I must say, I was highly pleased. It is decidedly the best machinery I have ever seen for the purpose, the results being as near perfection as possible, and I am quite sure its use in this case will be a very great saving to the company. No large mining establishment should be without your machinery, especially when labour is difficult to procure—a mere fraction of the hands being only required as against the old system, and the work altogether much better done, and a great saving of ore effected. I have heard it said that your machinery is better adapted for poor than for rich ores, but from what I have seen to day I am quite confident it will do for any kind of ores. I beg not only to congratulate, but also to compliment, you on the great success of your 'Patent Ore Dressing Machinery.' You may use this letter as you think proper."

Mr. MONTAGUE BEALE, Managing Director of the Cagliara Mining Company (Limited), says, on May 15th, 1873:—"I have much pleasure in speaking of the great efficiency of your 'Patent Dressing Machinery,' as erected by you at our mines at Rossa, in the Island of Sardinia. You will remember it has always been considered impossible to dress, or rather separate, the minerals our ores contain by machinery, but our captain assures me he gets a constant return of 76 per cent. of lead with the greatest ease, and I know by the returns we are realising the best market price. I consider this company is much indebted to you for the success you have achieved at so small cost. It may interest you to know, from my experience in several of the British possessions, including the whole of the Australian Colonies, that my opinion is I have never seen any dressing machinery that can efficiently, and at so small a cost, dress, and separate metallic ores, however close the mechanical mixture may be, as yours. You can use this letter in any way you like."

The most satisfactory testimonials also have been received from the GREENSIDE MINE COMPANY, Westmoreland: the TALARGOCH MINING COMPANY, North Wales, and others. Copies of these may be had from Mr. GREEN.

TO BRITISH AND FOREIGN COLLIERY AND MINING COMPANIES.

JOSEPH COOK AND SON,
WASHINGTON IRONWORKS,
COUNTY OF DURHAM,

Are CONTRACTORS for the SUPPLY of WAGONS, SMALL UNDERGROUND WAGONS or TUBS (of wood or iron), SCREENS, SCREEN BARS, CAGES, TEAMING CRADLES, FORGINGS, PUMPING GEAR, CAST and WROUGHT IRONWORK of all descriptions for Mining Purposes, patent and other wrought NAILS, BOLTS and SHOVELS, &c.

RAILWAY CARRIAGE COMPANY (LIMITED).—
ESTABLISHED 1847.
OLDBURY WORKS, NEAR BIRMINGHAM.

MANUFACTURERS of RAILWAY CARRIAGES and WAGONS, and EVERY DESCRIPTION of IRONWORK.

Passenger carriages and wagons built, either for cash or for payment, over a period of years.
RAILWAY WAGONS FOR HIRE.
CHIEF OFFICES,—OLDBURY WORKS, NEAR BIRMINGHAM.
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MANUFACTURE RAILWAY WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.
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WAGON WORKS,—SMETHWICK, BIRMINGHAM.
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GEOLOGICAL MINERALOGY.

SIX ELEMENTARY LECTURES ON ROCKS AND METALLIC MINERALS, adapted to a Juvenile audience, will be given by PROFESSOR TENNANT, at his residence, 149, STRAND, W.C., August 3rd, 4th, 5th, 6th, 7th, and 8th, at Ten A.M. and Three P.M. Terms:—Half-a-Guinea for the course.

Prof. TENNANT will probably afterwards repeat the Elementary Lectures on Mineralogy and Geology given during last Easter and Christmas holidays.

The Lectures delivered on the subject of Geology are intended to have especial reference to the important practical applications of that science to Engineering, Mining, Architecture, and Agriculture. The Granites, Syenites, Porphyries, Greenstones, Clays, &c., will be described, and the minerals peculiar to each noticed.

The application of Geology to pursuits connected with Mining Operations for Coal, Iron, Copper, Tin, Silver, Gold, Mercury, Antimony, Zinc, Cobalt, &c., will be specially considered. The Student is directed how to proceed in examining a new country, to collect and record his observations, and mark his specimens, in order to render them useful to more experienced geologists at home.

In order more fully to exemplify the applications of the Science, Mr. TENNANT accompanies his Classes to various Museums in London, including the Museum of Practical Geology and the British Museum; also, in Excursions into the Country, in which the actual field work of the Geologist is explained and illustrated.

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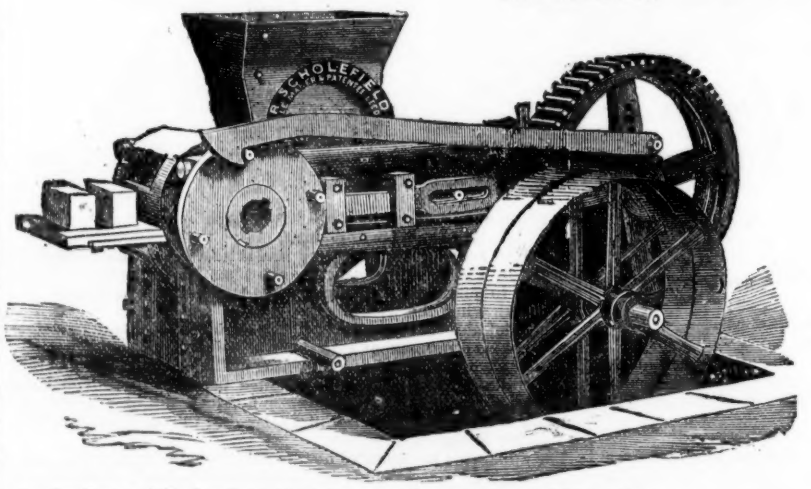

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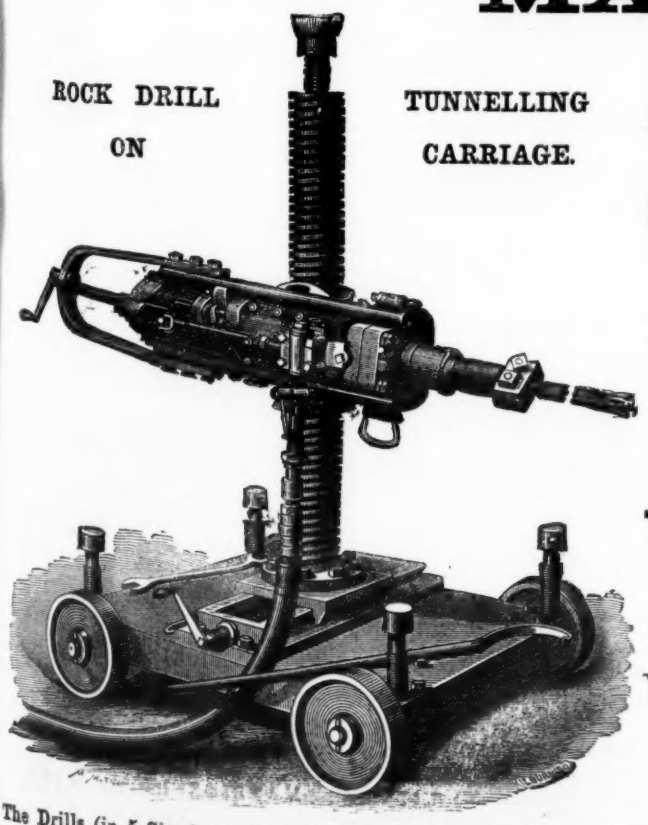

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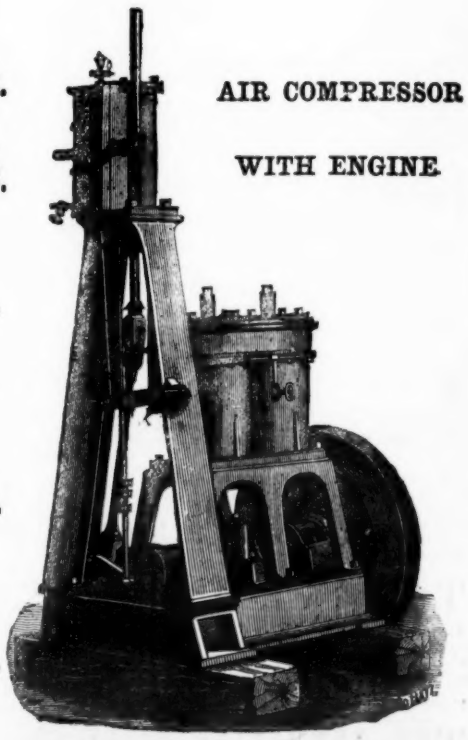

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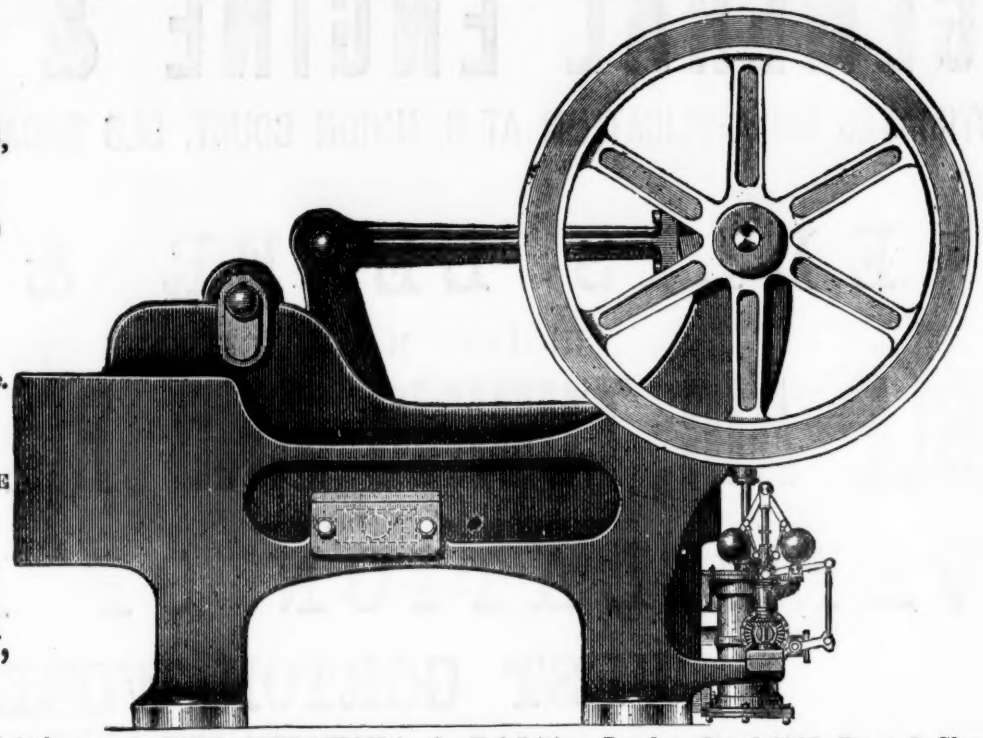

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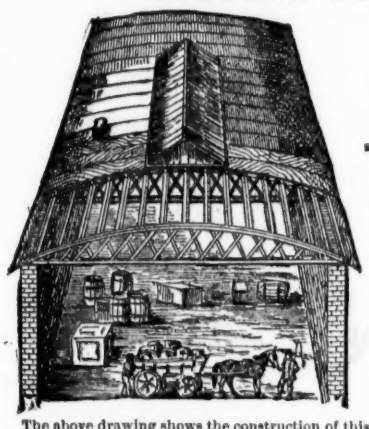

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